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Supply, Transportation, Depot Operations, Cost Analysis, Stock Positioning, Inventory Control, Stock Control, Economic Analysis, Distribution, Physical Distribution, Second Destination Transportation, First Destination Transportation.

A cost/benefit type analysis was performed on the CONUS physical distribution system for Army Class IX items to evaluate the impact of expanding the number of depots in which stocks are positioned. By positioning stock closer to the eventual customer, savings in second destination transportation cost and time were evaluated. However, those savings were offset by increased nonrecurring cost (start up costs) and recurring costs such as first destination transportation costs and supply depot operating costs. As the number of stock positioning points increases, total supply cost increases significantly. Therefor

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the existing distribution network is considered best at this time. However, because of less-than-perfect stock positioning, there is a considerable volume of shipments crossing geographical depot service boundaries which, if reduced, could significantly reduce total supply cost and time.

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# WHOLESALE STOCK POSITIONING AND DISTRIBUTION POLICIES PHASE I, VOLUME 2, METHODOLOGY

LOGISTICS STUDIES OFFICE PROJECT NUMBER 053

TECHNICAL REPORT AUGUST 1985



PAUL E. GROVER

LOGISTICS STUDIES OFFICE
US ARMY MATERIEL SYSTEMS ANALYSIS ACTIVITY
FORT LEE, VIRGINIA 23801-6046

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# WHOLESALE STOCK POSITIONING AND DISTRIBUTION POLICIES PHASE I, VOLUME 2

### Chapter I. INTRODUCTION

This volume contains detailed descriptions of methodology, calculations, intermediary results and discussions that were omitted from the Main Report in the interest of brevity. Each chapter contains documentation of a cost element or effectiveness element. Extensive use is made of tables and figures to illustrate, step-by-step, the procedures followed. Because of the many tables and figures used, it was decided that the report would be more readable if the tables and figures were consolidated at the end of each chapter. Appendices are used for data that is common to several chapters or is sufficiently voluminous to discourage all but the most conscientious reader. This volume is not intended to be a stand-alone document and its use beyond the context as a supplement to Volume 1 is discouraged.

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### Chapter II. FIRST DESTINATION TRANSPORTATION COST

### I. Introduction.

- A. For purposes of this report, First Destination Transportation (FDT) is defined as the the movement of the Class IX item from the manufacturer's plant to the supply depot. Army policy is similar to DLA policy which in DLAM 4145.10 [11] states "It (transportation concept) involved basically a long haul in and short haul out in overall depot distribution missions wherein distance from depot to customer is given more consideration than distance from procurement source to depot for depot stock replenishment purposes." Thus, from a cost consideration, FDT is intentionally non-optimal in an effort to keep Second Destination Transportation time for delivery to a minimum.
  - B. Efforts to analyze FDT cost are hampered by data problems.
- 1. Budgeting and funding for FDT for Class IX depends on how the contract is written.
- a. Free on Board (FOB) Destination contracts. When FOB Destination is specified for transportation, the contractor arranges for and pays for transportation to the depot. The cost of transportation is included in the unit price of the item and is invisible to the government. This is the preferred and dominant means of funding FDT for Class IX.
- b. FOB Origin contracts. When there is uncertainty in destinations or for other reasons advantageous to the government, the contract can specify FOB origin. Under these circumstances, the government (NICP) arranges and pays for transportation to the depot. These costs are visible; budget and actual cost data are available. However, FOB origin is the exception rather than the rule.



- 2. It is often difficult to determine the location of the FDT source for Class IX items.
- a. Automated procurement data files contain location data on contracts over \$25,000 from data elements taken from the DD Form 350, Individual Procurement Action Report. However, many Class IX procurements are for less than \$25,000 and thus are not part of the automated file.
- b. Use of geographic procurement distributions such as Figure II-1 [12] may be misleading for Class IX because:
- (1) These dollar distributions can be dominated by large contracts for major items such as the Abrams tank.
- (2) These distributions contain ammunition and service contracts which can further distort the distribution from the real Class IX distribution.
- C. General Concepts. Despite the limitations discussed in the preceding paragraph, FDT within the Army can roughly be characterized as a flow of materiel from the industrial Midwest to the three existing AODs as shown in Table II-1. Table II-1 is fairly representative of the Army pattern because TACOM [13] accounts for about 89.5% of the Army managed Class IX weight and nearly 68% of the FDT cost (see Appendix B). As additional supply depots are added to the distribution network, the following effects should be observed.
  - a. The average FDT distances shipped should generally be less.
  - b. The average weight per shipment will be decreased.
- c. The shipment modes may shift to less economical modes as the weight per shipment decreases.
  - d. The total number of shipments will increase.

### II. Methodology.

A. Methodology A. A sample of thirty procurement actions was selected and FDT cost was estimated by NICP traffic management personnel for each alternative

distribution network. The allocation of quantity shipped to each depot destination was based on demand patterns formulated from the Logistics Intelligence File. Percentage changes caused by altering the network were applied to an estimate of total FDT cost to estimate the overall effect on the population.

B. Methodology B. A cost estimating relationship was developed based on MTMC Freight Information System data for truckload shipments destined to the existing AODs. For less-than-truckload shipments, a cost estimating relationship developed for second destination transportation cost was used to estimate shipping cost as a function of weight and distance shipped. These relationships were applied to each alternative for four hypothetical scenarios to observe the effect on FDT cost. Percentage changes for these hypothetical cases were computed and applied to an estimate of total FDT cost for the items in the scope of study.

### III. Sources of Data.

- A. Methodology A. Each of the six NICPs was tasked to estimate FDT costs for five representative procurements. A questionnaire shown in Appendix A was used to insure uniformity of response. The "quantity shipped" entries were computed based on Table 1, Appendix A, page 110. This table was developed from LIF data (Appendix B) by reassigning lines per Appendix C boundaries and computing the fractional changes to the overall depot volume. Table II-2 contains some of the key data provided by the NICP specialists.
- B. Methodology B. A sample of 4303 Government Bills of Lading (GBL) for truckload shipments from 589 different sources destined to the three existing AODs was taken. This data was provided by MTMC from their Freight Information System per a request shown in Appendix A. A regression analysis of this data yielded an equation that estimates shipping cost as a function of weight

and distance shown in Table II-3. The less-than-truckload relationship in Table II-3 was developed for Second Destination Transportation cost and is documented in Chapter III, para IIE3. Four hypothetical scenarios were arbitrarily developed and these equations were used to develop estimates for each alternative, using Table 1, Appendix A, page 110, to reallocate weight and AR 55-60 for distances.

### IV. Analysis.

- A. Methodology A. Results of the sample questionnaires for the 30 procurements are tabulated in Table II-4 and II-5. Since it is known that TACOM generates 89.5% of the Class IX weight, an a-priori weighted average based on weights given in Table B-4, Appendix B is used to estimate the change in FDT cost which increases by 11.7% as the number of supply depots increases to 8 as shown in Figure II-2.
- B. Methodology B. Four scenarios were selected. The first and most likely scenario was a high volume producer located in Columbus, Ohio, shipping truckload shipments to the AODs. The second scenario was for a similar producer on the east coast (New York City). The last two scenarios chosen were a west coast (Los Angeles) and a Midwest producer (Detroit) shipping less-than-truckload amounts to the AODs. Detailed calculations for each scenario are shown in Appendix G. Cost calculations are based on formulae in Table II-3. Results, summarized in Figure II-2, indicate a much more severe impact on FDT cost associated with increased fragmentation of the shipments than predicted by Methodology A.
- C. Data shown in Table II-2 has a sample mean percentage of 1.86% and a sample standard deviation 2.195%. A 90% confidence interval on the true population mean for the FDT percentage is between 1.18% and 2.54%. However,

since the percentage varies considerably from NICP to NICP, an estimate of each NICP percentage is needed. Table II-6 applies the sample NICP means to the LIF extended values to yield an estimate for FDT cost of \$13.6M (CY 84) for Alternative 1. This value applies to Class IX stocks destined for CONUS customers shipped from the three AODs. The FY 85 value is \$14.0M.

- D. Using the most conservative methodology (Methodology A), Table II-7 projects the effect of expanded stock positioning on FDT cost. This table is developed by applying the percentage changes shown in Table II-4 and II-5 to the baseline FDT cost in Table II-6. As the number of depots increases to eight, FDT increases by 11.7% or \$1.6 million per year. Methodology B predicts a substantially greater increase in cost.
- V. <u>Validation</u>. To verify that the analysis of FDT cost is reasonable, an independent source was established to compare with the results of the analysis for Alternative 1. An attempt to validate the FDT percentages for each NICP shown in Table II-6 is shown in Table II-8. Despite individual NICP variances between sources that are significant, the average rates are close. Individual NICP differences could be caused by the combining of all transportation costs in the CSGLD-1111 report, thus blurring the comparison. Also, the difference could be caused by the high degree of uncertainty in the sample rates caused by the small sample size. Nonetheless, Table II-8 casts considerable doubt about the accuracy of the FDT rates used in the CCSS, except for CECOM and TACOM. The fact that these rates are applied to FOB destination contracts also causes further concern.

TABLE II-1. Source of TACOM Procurements for Army Stock Fund and Procurement Secondary Items - FY 84 and FY 85 (Partial)

Rank	State/Country	\$M Dollar Value	% of Total	Cum%
1	Ohio	282	31	31
2	Michigan	154	17	48
3	Indiana	125	14	62
4	Canada	63	7	69
5	New York	35	4	73
6	Illinois	31	3	76
7	California	25	3	79
8	Pennsylvania	20	2	81
9	Missouri	15	. 2	83
10	Arkansas	14	2	85
11	Arizona	12	1	86
12	Minnesota	11	1	87
13	Wisconsin	11	1	88
14	Virginia	9	1	8 <b>9</b>
15	North Carolina	8	1	90
16	Florida	7	1	90
17	Texas	7	1	91
18	Massachusetts	7	1	91
19	Connecticut	7	1	92
20	Tennessee	6	1	93
	Others	63	7	7
		912		100

TABLE II-2. FDT Sample Data - Alt 1

Command	Nomenclature	State Where Produced	\$K Contract Value	\$ FDT Est	%
AMCCOM	Equilibrator	FL	35	1043	2.9
	Grip, Pistol	SC	20	1259	6.4
	Holster, Pistol	NY	246	2822	1.1
	Clutch Assy	CT	155	421	.3
	Network, Comdrs	NY	47	469	1.0
AVSCOM	Windshield Panel	TX	505	11875	2.4
	Collar, Suppressor	TX	11	23	.2
	Window Panel	AZ	139	856	.6
	Pump, Air	OH	745	1217	.2
	Indicator, Altitude	IL	1537	2710	.2
CECOM	Mast Assy	SC	38	592	1.6
	Plate Assy Control	CT	58	159	.3
	Telephone Circuit	NJ	166	855	.5
	Gasket	CA	13	723	5.4
	Freq Transmitter	NJ	25	14	.1
MICOM	Indicator, Coola	CA	143	135	.1
	Squelch Amplifier	CA	77	132	.2
	Encoder, Optical	TX	22	141	.6
	Eye Cup Inflatable	AL	35	291	.8
	Battery Assy	MT	797	4491	.6
TACOM	Battery, Storage	IN	252	9261	3.7
	Rack, Assy	MI	102	8681	8.5
•	Curtain, Vehicular	AZ	99	2936	3.0
	Tires, Pneumatic	IL	266	11441	4.3
	Steering Gear	CA	844	4116	.5
TROSCOM	Filter Element	NY	240	6706	2.8
	Parts Kit, Carburetor	TX	2240	6223	.3
	Compass, Magnetic	MA	2588	11208	. 4
	Filter Element	MN	83	4364	5.3
	Voltmeter	CA	139	2036	1.5
TOTAL			11665	97200	
AVG			389	3240	1.9

TABLE II-3. Cost Estimating Relationships for Estimating First Destination Cost as a Function of Weight and Distance (CY 84\$)

Mode	#GBLs	#GBL0Cs	Equation	R <sup>2</sup>
Truckload	4303	589	Y = 120.57 + .009597(WT) + .7427(MILES)	.80
Less Truckld	3755	764	Y = .433 WT .541 . MILES .328	.7390 <sup>1</sup>

<sup>&</sup>lt;sup>1</sup>Equation is a composite of three equations whose coefficients of determination ranged from .73 to .90. (See Table III-9).

Y = Cost per shipment in dollars WT = Weight per shipment in 1bs MILES = Distance in miles between source and destination.

TABLE II-4. FDT Relative Change in Sample FDT Cost Compared to Alternative 1 - Alternatives 2-4, Methodology A

Comma nd	FDT \$ ALT 1	FDT \$ ALT 2	ALT 2 % Change	FDT \$ ALT 3	ALT 3 % Change	FDT \$ ALT 4	% Change
AMCCOM	6013	6081	1.1	6437	7.0	6614	10.0
AVSCOM	16681	17267	3.5	17408	4.4	17623	5.6
CECOM	2344	2393	2.1	2486	6.1	2534	8.1
MICOM	5189	5642	8.7	5880	13.3	6225	20.0
TACOM	36436	37345	2.5	38516	5.7	39258	7.7
TROSCOM	30537	31958	4.7	34047	11.5	35114	15.0
TOTAL	97200	100686		104774		107368	
SIMPLE AVG			3.8		8.0		11.1
\$WTD AVG			3.6		7.8		10.5
A PRIORI WTD AVG BY WT			2.6		5.9		8.0

TABLE II-5. FDT Relative Change in Sample - FDT Cost Compared to Alternative 1 - Alternatives 5 and 6, Methodology A

Comma nd	FDT \$ ALT 1	FDT \$ ALT 5	ALT 5 % Change	FDT \$	ALT 6 % Change
AMCCOM	6013	6692	11.3	6868	14.2
AVSCOM	16681	17555	5.4	17699	6.1
CECOM	2344	2586	10.3	2752	17.4
MICOM	5189	6530	25.8	6802	31.1
TACOM	36436	39490	8.4	40558	11.3
TROSCOM	30537	35198	15.3	36488	19.5
TOTAL	97200	108321		111167	
SIMPLE AVG	·		12.8	•	16.6
WTD AVG			11.4		14.4
PRIORI WTD AVG BY WT			8.7		11.7

TABLE II-6. Baseline Estimate of FDT Cost, CONUS, Class IX, CY 84

Command	Sample FDT %	CONUS Class IX Extended Value \$M <sup>1</sup>	FDT Estimate
AMCCOM	1.2	94	1.1
AVSCOM	.6	/ <sup>2</sup>	/2
CECOM	.8	83	.7
MICOM	•5	151	.7
TACOM	2.3	400	9.2
TROSCOM	.6	314	1.9
		1042	-13.6

<sup>&</sup>lt;sup>1</sup>Source: LIF.

<sup>&</sup>lt;sup>2</sup>Included in TROSCOM; AVSCOM and TROSCOM were a single NICP in CY 84.

TABLE II-7. Summary of Annual FDT Cost (FY 85 \$M)

Alt No	Baseline FDT \$	Meth A % Change	FDT Cost Estimate	Difference From Alt 1
1	14.0	•	14.0	0
1A	14.0	-	14.0	0
2	14.0	+2.6	14.4	.4
3	14.0	+5.9	14.8	.8
4	14.0	+8.0	15.1	1.1
5	14.0	+8.7	15.2	1.2
6	14.0	+11.7	15.6	1.6

TABLE II-8. Validation of Sample FDT Rates

Command	FDT CCSS Rate <sup>1</sup>	FY 84-85 Transportation Surcharges \$M <sup>2</sup>	FY 84-85 Actuals \$M <sup>2</sup>	Revised FDT Rate <sup>3</sup>	Sample Rate
AMCCOM	1.4	23.14	13.00	.8	1.2
AVSCOM	1.6	9.35 <sup>4</sup>	3.80 <sup>4</sup>	.7	.6
CECOM	1.0	8.09	10.00	1.2	.8
MICOM	1.4	5.97	2.32	.5	.5
TACOM	1.9	59.11	42.50	1.4	2.3
TROSCOM	1.6	8.74	4.68	.9	.6
	·	AVG	ì	.9	1.0

Commodity Command Standard System, Vol 1, CCSSOI-18-700-101 FDT Rates for Army Stock Fund

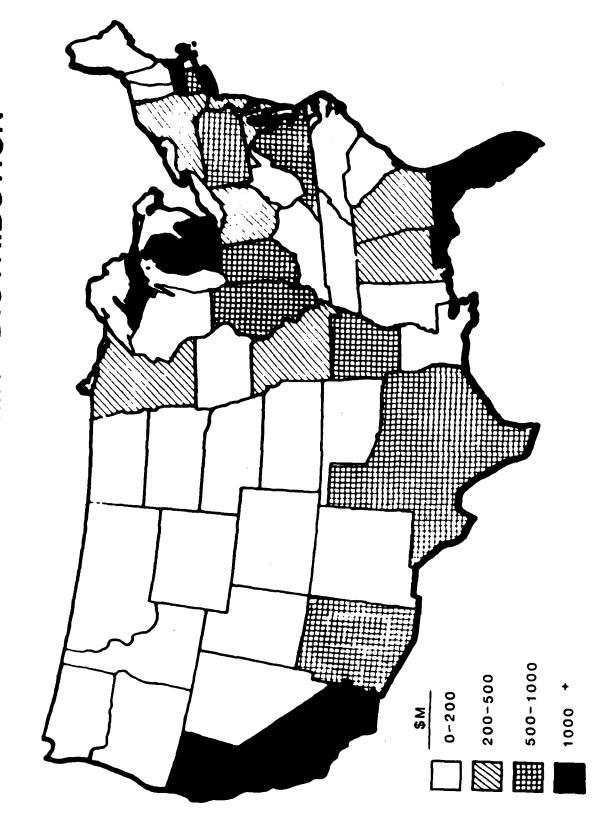
NOTE: Column 3 is the amount accrued by assessing the FDT and SDT surcharge percentages to the unit price of stock fund items. Column 4 is the actual transportation billings against the Column 3 account. Thus, it appears that the stock fund is accruing money in the transportation area because the surcharge factors are excessive. On the other hand, there are other stock fund adjustments, such as for inflation, where the stock fund consistently loses money.

<sup>&</sup>lt;sup>2</sup>Source: CSGLD-1111 Reports, Pricing Analysis, Army Stock Fund Budget - includes First and Second Destination; all depots, OCONUS + CONUS

 $<sup>^{3}</sup>$ Equals Column 2 X  $\frac{\text{Col } 4}{\text{Col } 3}$ 

<sup>&</sup>lt;sup>4</sup>FY 85 only

# FY 84 PROCUREMENT DISTRIBUTION



gure II-1. Distribution of Army Contracts by State, FY 84.

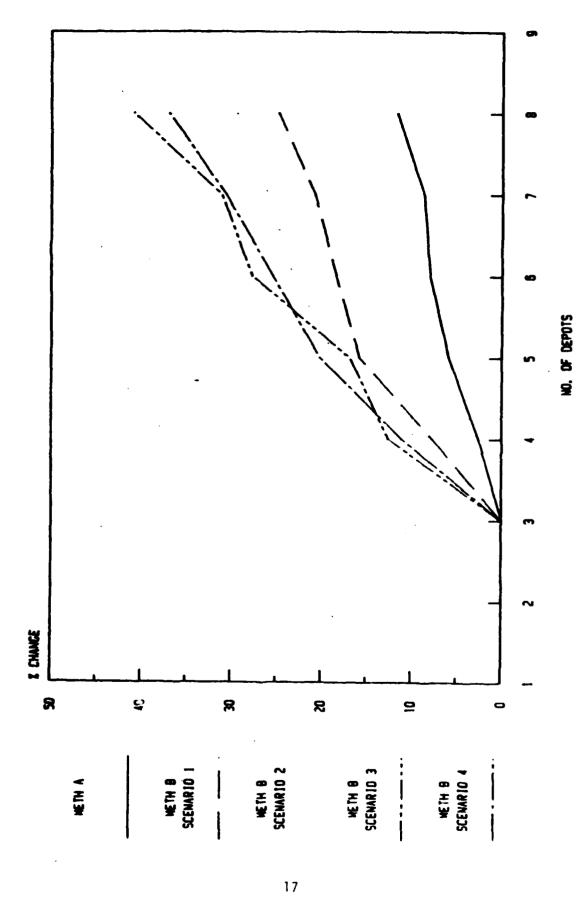


Figure II-2. FDT Sensitivity to Stock Positioning

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### Chapter III. SECOND DESTINATION TRANSPORTATION COST

### I. Introduction.

- A. For purposes of this study, second destination transportation (SDT) cost is defined as the cost of transportation from the supply depot to the requisitioning activity. This transportation has several subactivities as follows:
- 1. In-house activity at the depot. For each shipment or issue, there is a cost associated with managing the transportation system. A transportation officer at each depot administers this function, performing a multitude of duties to insure swift, effective, and efficient transportation services for incoming and outbound materiel. In addition to the administrative costs, depot personnel preserve, package, and pack materiel for shipment, mark and label shipping units, handle packages awaiting shipment, and load the delivery vehicle. These costs, both administrative and direct labor, are considered as depot operating costs and are addressed in Chapter IV.
- 2. Direct shipping charges. Since almost all transportation from Army depots is done by commercial carriers, the contractual cost of transportation services is billed to the government and accounted by the US Army Finance and Accounting Center. Common examples would be Government Bill of Lading (GBL) charges for truckload and less-than-truckload motor freight and air deliveries, guaranteed traffic billings, United Parcel Service billings, etc. This chapter will deal exclusively with these costs.
- 3. Customer receipt costs. Upon arrival at the requisitioning installation, there are costs associated with receiving, storing, and further distributing the material. These costs should not be impacted by stock positioning alternatives at the depot level and are treated as a "wash" cost.

B. Funding for second destination transportation costs has historically been a problem for the analyst [14]. For the items considered in the scope of this study, CONUS Class IX, one must determine whether the Class IX item is funded from the Army Stock Fund (ASF) or whether it is a procurement funded secondary item (PA secondary). For ASF items, second destination transportation costs are funded from an OMA account that is resourced through a surcharge mechanism applied to the unit price of the item. When the customer pays for the item, a portion of the expense is SDT, computed as a percentage of unit price which varies depending on the NICP. For PA secondary items, annual budget requests are processed through the Planning Programming and Budget System for second destination transportation costs. However, these funds are managed and controlled by the NICP as part of a combined SDT budget. The visibility of the SDT for PA secondary items becomes obscured in the process.

### II. Methodology.

- A. General concept. The direct shipping charge from a depot to a CONUS customer is modeled as a function of mode of transportation and distance between source and destination. These charges are estimated by cost models developed from CY 84 data obtained from the MTMC Freight Information System and other sources. Applying these estimated charges to the material flow patterns derived from the Logistics Intelligence File (LIF) data for CY 84 for each alternative yields an estimate of total SDT cost for CONUS, Class IX items.
- B. Modes of transportation. The LIF classifies transportation mode using a one character code as shown in Table III-1. Many of these codes pertain to OCONUS shipments; others are rarely used for Army Class IX shipments. To simplify the analysis, it was decided to group transportation modes into four

major classifications based on cost similarities, frequency of use and consistency with previous studies [8]. These four groupings accounted for all but 91 lines out of 1.3 million lines (most of the 91 were coded 6, D, K, L, or 2).

- 1. Truckload LIF codes A and 9 were combined as truckload shipments (very few lines were coded 9, Local Delivery). In the MTMC Freight Information System, data having a mode of shipment code of motor, van and a weight of over 10,000 lbs was considered to be a truckload shipment. Truckload shipments form the dominant mode of SDT transportation as shown in Appendix B. For cost estimating purposes, distinction was made between truckload shipments depending on the destination as follows:
- a. Guaranteed traffic Some installations and depots have a high recurring demand for items from a particular depot. To take advantage of this situation, DESCOM and the depots arrange for agreements with commercial carriers for fixed schedules and fixed prices for shipments between the depot and the high demand customer. The depot guarantees at least one shipment each week at a certain time and the carrier guarantees service at a fixed price regardless of the actual load within certain restrictions concerning commodity types, weight maximums, cube considerations and other factors. Guaranteed traffic patterns used in this analysis are shown in Table III-2.
- b. Non-guaranteed traffic For any source/destination pair not shown in Table III-2, truckload shipments were considered nonguaranteed traffic. These include stop-overs (a single truckload is dedicated to multiple destinations at a guaranteed schedule and rate) and low demand, isolated customers who occasionally need enough material to meet the criteria for a GBL truckload.
- 2. Less-than-truckload Since trucking rates for smaller loads are higher than rates for full loads, a separate category for light loads is necessary.

- All lines in the LIF coded mode B and MTMC Freight Information System lines coded motor, van and less than 10,000 lbs are categorized as less-than-truckload.
- 3. Small package For small, light weight shipments to low-demand customers and some shipments to high demand customers, small package delivery services are cost effective means to meet UMMIPS time standards. LIF codes G, J, and 5 corresponding to Surface Parcel Post, Surface Small Package Carrier, and United Parcel Service were combined for modeling simplicity and labeled "Small Package."
- 4. Air Generally, when time is critical, it may be necessary to ship by air, despite the added expense. LIF codes H, \*, Q, R, and T corresponding respectively to Air Parcel Post, Air Small Package Carrier, Commercial Air Freight, Air Express and Air Freight Forwarder were combined as "Air" shipments. MTMC lines coded Air Freight Forwarder predominated in the Freight Information System and were used to develop a cost model for air shipments.
- C. Approach. For each mode of transportation, a cost estimating relationship was developed to express SDT cost as a function of other known variables including distance between source and destination. For truckload, less-than-truckload, and air shipments the relationship was derived using regression analysis on MTMC Freight Information Systems data and guaranteed traffic data supplied by HQ DESCOM. For small package shipments actual UPS rates were used. These cost estimating relationships were applied to LIF shipment data (lines and tons) for the applicable sources and destinations based on geographical allocations shown in Appendix C.
  - D. Sources of Data.
- 1. Logistics Intelligence File data Hard copy and magnetic tape data was provided by the Logistics Control Activity in response to a request

contained in Appendix A. A sample of the hard copy report is provided in Table III-3. Unit weight, unit cube, and unit price fields were extracted from the Army Master Data File. A total of 1.44 million lines (records) shipped was recorded in the LIF for CY 84 of which 1.31 million were shipped from the three AODs. A descriptive analysis of this data is contained in Appendix B.

- 2. Military Traffic Management Command Freight Information System data Cost of GBL transactions were obtained in response to a data request shown in Appendix A. A sample page of a nine-volume report provided by MTMC containing approximately 200,000 records is provided in Table III-4. For the eight Army depots specified, the CY 84 data for inbound and outbound transportation cost was also dominated by data from the three AODs.
- 3. DESCOM data HQ DESCOM provided a listing and rates for guaranteed traffic from the three AODs for truck and air shipments. Data used in this analysis is contained in Table III-2.
- 4. Distances between source and destination AR 55-60, Official Table of Distances, 1 January 1979, was used to determine mileages. In some cases when the source or destination was not recorded in AR 55-60, the nearest city or installation was substituted. For LIF data, where shipments were aggregated by state, the state capital was chosen to be the assumed destination with a few necessary exceptions.
- 5. UPS data Considerable information on 1985 rates, FY 84 billings, schedules and comparisons with USPS were provided by the UPS Federal Sales Representative. Of primary importance to this part of the analysis was a complete set of UPS Ground Service Zone Charts for the eight depots considered (example shown in Table (II-5) and an accompanying rate chart (Table III-6).

### E. Analysis.

1. General. A VISICALC\* program was set up to calculate SDT cost for each alternative and mode using a straightforward, deterministic model of the general form:

- 2. Truckload. The unit of measure selected to quantify SDT truckload cost in EQ III-1 is the number of truckloads per year ( $X_{i1kl}$  is the number of truckloads per year from depot K to customer 1). To estimate X, the annual weight in short tons from the LIF between a given depot and destination pair is divided by the average weight (short tons) found in Table III-2 for guaranteed traffic pairs or 10 short tons for other pairs.
- a. Guaranteed traffic destinations. Based on the data in Table III-2, a regression analysis yielded a well-correlated ( $R^2$ =.96) linear equation  $C_{1k}$  = 161.566 + .81777dk] where  $C_{1k}$  is the cost per truckload (CY 84\$)

<sup>\*</sup>VISICALC is a trademark of Personal Software, Inc.

for guaranteed traffic destination 1 from depot k (K=4,5,6,7) and  $d_{k1}$  is the distance in miles between depot k and guaranteed traffic destination 1. Further details on this regression analysis can be found in Figure III-1. Actual guaranteed traffic rates in Table III-2 were used for the pairs in the table. The model equation is used for guaranteed traffic rate prodictions for other depots to guaranteed traffic destination under alternatives 2 through 6.

- b. Non-guaranteed traffic destinations. A cursory view of the MTMC data revealed some significantly different cost patterns between the three AODs. Therefore, it was decided that a separate cost model was required for each depot. In each case, a sampling procedure was followed to select MTMC Freight Information System records because of software limitations of the regression package used and time limitations caused by the manual process of determining distances in AR 55-60. The sampling algorithm selected every fifth truckload record when the GBLOC destination code was unspecified and every record for specified GBLOC destinations whereby the distance was readily indentifiable in AR 55-60. For specified GBLOC destinations, all GBLs were incorporated as a single data point by computing the average cost for truckload shipments during CY 84 between the AOD and the destination. Results of this analysis are reported as follows.
- (1) New Cumberland (NCAD). A regression analysis based on 561 GBLs considering 50 different destinations, yielded a reasonably correlated ( $R^2$ =.83) linear equation,  $C_{111}$  = 302.204 + .617769d<sub>11</sub>.  $C_{111}$  is the cost (CY 84\$) per truckload from NCAD to destination 1 and d<sub>11</sub> is the distance between NCAD and destination 1.
- (2) Red River (RRAD). Using the same procedures in the preceding paragraph, a regression analysis based on 273 GBLs from 48 distinct destinations

yielded a fair/poorly correlated ( $R^2$ =.62) linear model of  $C_{121}$  = 195.172 + .796629d<sub>21</sub>.

(3) Sharpe (SHAD). Results using similar procedures to RRAD and NCAD models were unsuccessful because of poor correlation. As a result, different model forms were investigated. Using data from 43 truckload GBLs to 17 distinct destinations, the following model ( $R^2$ =.69) was selected:

$$\frac{c_{131}}{w_{13}}$$
 = 1.90469 + .00322388 d31

where C131 is the cost per pound (cents/lb) for truckload shipments from  $\overline{\text{W13}}$ 

SHAD to destination 1 and  $d_{31}$  is the distance between SHAD and destination 1. To convert this dependent variable to a cost per truckload, the resultant predictions were multiplied by the average weight of SHAD truckload shipments from the sample (23499.2 lbs).

- (4) Other depots. Although the MTMC data contained GBL shipments from the other depots, it was not used because the data probably reflected costs of material other than Class IX. To predict truckload shipments from other depots to non-guaranteed traffic customers, the average intercept and slope terms for the NCAD and RRAD models were assumed. The model used is  $C_{1k1} = 248.7 + .707d_{k1}$  for K = 4,5,6,7,8.
- c. Predictive cost models used for truckload shipments are summarized in Table III-7.
- d. Applying the predictive models to the EQ III-1 for each alternative yields results shown in Appendix E. Table III-8 summarizes Appendix E results with some minor adjustments.

- 3. Less-than-truckload. The unit of measure selected to quantify less-than-truckload SDT is the number of lines shipped (see EQ III-1). The cost per LIF line shipped was found to be a function, primarily, of the weight of the line and, secondarily, of the distance between source and destination. The cost per line shipped was determined by use of non-linear multiple regression analysis on MTMC data such as shown in Table III-4.
- a. New Cumberland Army Depot A sample of 1705 GBLs representing 357 different destinations was taken and analyzed. Analysis indicated that weight per GBL was the dominant cost driver, but that high correlation could only be achieved by adding a second variable to the regression formulation, namely distance. Linear models failed to provide high correlation, leading to the use of the following model:

$$C_{2k1} = .134 \text{ WT}_{k1}$$
 .508 .246

where  $C_{2k1}$  = cost per line CY 84\$ for less-than-truckload shipments between depot k and destination 1.

WTk1 = average weight per less-than-truckload line in lbs between depot k and destination l.

dk1 = distance in miles between depot k and destination 1.

- (1)  $R^2$  for this model is .86.
- (2) The actual regression equation developed of the form  $Y = AX_1 \quad X_2 \quad \text{had a value for the A coefficient of 1.050.} \quad \text{This value}$  was reduced to .134 because the data represented GBL shipments rather than LIF lines shipped. The average weight in the GBL sample was 1910.07 lbs. The average weight for less-than-truck load LIF lines was 243.68 lbs. Therefore, the average GBL contains 7.84 LIF lines. By dividing the GBL coefficient

(i.e., 1.050) by 7.84 one is equally apportioning the total GBL cost to each of the 7.84 lines in the GBL.

- (3) Weight per line data was obtained from the LIF.
- b. Red River Army Depot and Sharpe Army Depot Following the same methodology as described for NCAD, the cost (per line) estimating relationships for RRAD and SHAD were developed. Results are shown in Table III-9.
- c. Other Depots Rather than use MTMC data which would have had led to small sample sizes and be contaminated by non-Class IX items, it was decided that an average of the coefficients developed for the three AODs would be used for the other five depots as shown in Table III-9.
- d. Applying the predictive models to EQ III-1 for each alternative yields results shown in Appendix E. Table III-10 summarizes Appendix E results, with some minor adjustments as described in Table III-8.
- 4. Small Package. A review of the LIF data detailed in Appendix B and verified by the DARCOM Freight Traffic Report, RCS DRCMM-306 for period ending 30 June 1984, indicated that almost 75% of the AOD small package shipments were done by UPS. Most of the remainder is done by United States Parcel Service (Parcel Post). A comparison of UPS rates with USPS rates obtained from UPS shows that generally UPS has slightly lower rates (nominally 5-10% less) for shipments up to around 15 lbs for zones 2, 3, and 4. For zones 5, 6, 7, and 8 UPS has a greater cost advantage. However, the relatively small difference between UPS and USPS rates coupled with the dominance of UPS shipments led to the following assumption for small package shipments; the cost of small package shipments were estimated as though all shipments were UPS.
- a. The unit of measure selected for application to EQ III-1 is the number of small package lines shipped. The cost per line is a function

of the line weight and the UPS Ground Service Zone exemplified in Table III-5. The rates shown in Table III-6 are independent of source.

- b. Zone numbers between depots and destinations were manually determined by zip code lookup using the USPS zip code directory. Weight per line data was derived from the LIF.
- c. Results of applying EQ III-1 are contained in Appendix E for each alternative and are summarized in Table III-11.
- 5. Air. The unit of shipment measurement used in EQ III-1 is weight. This choice is based on the assumption that the cost of air shipments is not affected by the distance between shipping points. This assumption can be justified by several observations. First, many air freight companies charge the same rates regardless of distance for up to 70 lb packages (i.e., UPS, Federal Express). And, secondly, the vast majority of air shipments are less than 70 lbs. The average weight per line shipped in the LIF was 14.1 for CY 84. Finally, attempts to correlate air shipment cost with distance yielded a statistically insignificant relationship ( $R^2 = .02$ ).
- a. In making the assumption specified above, the cost differential between alternatives for air shipments will consequently be zero. It will make no difference in cost to change the source of shipment since the weights will always be the same. Therefore, a minimal effort to quantify this cost was attempted. A sample of 135 GBLs from SHAD to 49 separate destinations yielded the following equation with an  $\mathbb{R}^2$  = .95

C4k1 = 1.853 + 1.09101 WTk1

where C4k1 is the cost per shipment for air transportation between depot k and destination 1 in CY 84\$.

 $WT_{kl}$  is the average weight per shipment between depot k and destination l in lbs.

- b. Applying the above formula to EQ III-1 for all depots (assuming SHAD rates also apply at other depots) results in detailed SDT estimates shown in Appendix E and summarized in Table III-12.
- 6. Summary by Mode. Tables III-8, 10, 11, and 12 are summarized in Table III-13.

### F. Validation.

- 1. Percentages were computed and compared with data in the DARCOM Freight Traffic Report, RCS-DRCMM-306 for Alternative One to validate results. Comparison is shown in Table III-14. The differences in mode distribution can be partially explained by the inclusion of OCONUS shipments in the 306 report data. Since these shipments (about 40% of the total) tend to leave the AOD via Truckload, this can account for the higher 306 report percentage dollars for truckload. The difference in Air \$ percentage differences is more perplexing. It can partially be explained by the model assumption of using SHAD rates to RRAD and NCAD. The 306 report shows that NCAD and RRAD cost per 1b is much lower than SHAD's. Thus, the air cost may be overestimated. Since this overestimate applies equally to all alternatives, no corrective action was deemed required for this phase of the analysis.
- 2. Cost per 1b. To further validate model results, an additional comparison was made for Alternative 1 model results against the cost per 1b for each mode of transportation. Results shown in Table III-15 indicate that transportation rates do vary from depot to depot (verifying the need to develop separate models for each depot) and that on balance, the model results are reasonable from a cost per 1b viewpoint. Air shipments may be overestimated, conversely small package shipments may be underestimated due to the UPS assumption.

- 3. Validation of Total SDT. Is the \$9 million estimate for CONUS Class IX Army items to Army customers in the "right ballpark"? This is a critical issue since the Grace Commission has indicated that the Army can save \$20M by positioning stock in other services depots [3]. Obviously, either the Grace Commission estimate is in error or the study results are far too low (or both). To look at this, it is necessary to do a top down analysis of the budgeted Army dollars to test the reasonableness of the \$9 million estimate.
- a. Total Class IX SDT budget FY 84. Given that the total ASF budget is \$1,668 million for FY 84. Given also that the AMC second destination transportation budget for FY 84 was \$30 M. The total SDT for AMC is the sum of ASF SDT plus \$30 M. This generally includes all classes of supply. To extract Class IX from the total is the next step.
- b. All ASF can be considered Class IX. ASF SDT is funded by a surcharge applied to the unit price. Current surcharges are shown in Table III-16. Nominally, the SDT surcharge is around 2.5% but this varies from NICP to NICP. However, a review of the transportation accounts found in the CSGLD-1111 Reports for FY 84 and FY 85 shows a negative 36% variance in FY 84. The transportation account accrued 36% more via the surcharge than was actually spent. This also happened in FY 85. Assuming the variance applies equally to FDT and SDT, an SDT rate of 1.6% would be more appropriate. The estimate of ASF SDT then is \$1,668 M X .016 = \$26.7 M for FY 84.
- c. Given that PA secondary items account for 3.8% of the total lines shipped (PA secondary + ASF) per the Distribution Effectiveness report. Assuming average transportation costs are the same for PA secondary items as for ASF items. The estimate of the total SDT attributed to PA secondary items is \$1.1 M. Therefore, the total cost of Class IX SDT in the Army is \$27.8

million for FY 84. To identify the portion that is CONUS, Army customers, the following deductions are made:

- (1) Foreign Military Sales [15] 4.4% of total.
- (2) OCONUS [15]

- 40.5% of total.
- (3) Other Services [16]
- 8.4% of total.
- d. Excluding the three categories above, the CONUS Army Class IX SDT is estimated for FY 84 to be \$13.0 M. From the LIF, 29.6% of the CONUS weight was shipped by non-AOD depots. Thus, AOD shipments should be 70.4% of 13 M or \$9.2 M. Therefore, the estimated model prediction for Alternative 1 of \$9.0 M is reasonably close to the actual figure for FY 84.
- 4. SDT percentage of unit value. Since SDT is financed through a surcharge on unit price, a comparison was made of the model generated surcharge based on the \$9 M estimate of SDT with current surcharges. The total extended value of the LIF data that applies to the \$9 M transportation cost is \$1041 M, yielding an actual SDT rate of .86%. The actual ASF rate reported in para F3b is 1.6%. However, by factoring in the small number of high value PA secondary items, the overall Class IX rate drops to 1.0%.
- 5. Validation summary. The distribution of modes, the rates and the overall cost of SDT was validated by comparing model results with other sources. It is concluded that the estimates for SDT are at least "in the right order of magnitude" for the items in the scope of this study.
- G. Uncertainty Analysis. There are several sources of uncertainty associated with SDT cost estimation. Numerous assumptions were made, cost estimating relationships were developed based on sample data, correlation with past data ranged from fair to excellent depending on the subset of SDT analyzed and the LIF data itself may be suspect. In addition, computational errors may

have inadvertently crept into the estimates since approximately 17,000 calculations were required to execute EQ III-1 plus several thousand calculations were made to develop and apply cost estimating relationships. However, because of the validation exercise in para III-F, the order of magnitude of the estimates are reasonably assured.

## III. Discussion.

- A. The results shown in Table III-13 do not agree in magnitude and principle with other similar studies [1,2,3], which show greater magnitude of SDT and greater effect (cost reduction) associated with closer positioning.
- 1. Magnitude The relatively low magnitude of \$9 M/year for SDT reported can be explained by the scope limitations documented in Volume I. Other studies have included other supply classes in addition to Class IX. Also, other studies have included OCONUS shipments in the analysis.
- a. Other classes of supply. Army depots ship a considerable volume (weight, not lines) of Class V, ammo, and Class VII, major items in addition to Class IX. The positioning of Classes V and VII is constrained by the need for special storage facilities, test equipment, transportation, and other factors. For example, major items are normally positioned at the repair depot, because repair is the major source of supply and because of the high cost of transporting major items. It is usually less expensive to ship directly from the repair depot to the customer than to ship from repair depot to storage depot to customer. Thus, an analysis that contains non-Class IX stocks will tend to overestimate the weight, volume, and lines that can reasonably be expected to be repositioned.
- b. OCONUS shipments The Army positions and consolidates shipments overseas at two Container Consolidation Points (CCP). New Cumberland

Army Depot is the CCP for the Atlantic region and Sharpe Army Depot covers the Pacific region. It is difficult to conceive a means of improving the CCP concept from a transportation point of view, unless the CCP was positioned closer to the port. Since NCAD and SHAD are the closest Army depots to the major ports, no improvement could be made by repositioning with the Army depot structure.

- 2. Sensitivity to distance considerations The reduction in SDT associated with adding more depots to the distribution network shown in Table III-13 is relatively flat. The cost of SDT shown is only slightly reduced as stocks are positioned closer to customers. This differs considerably with the WIDS study which claimed a "conservative" estimate of a 45% reduction in transportation cost. There are some significant common shortcomings in the methodologies of these studies [1,2] that explain the differences in the outcomes as follows:
- a. Failure to consider the <u>effect of small package and air shipments</u>. As indicated in Table III-13, these shipments are not an insignificant part of the SDT picture, yet the modes are often ignored because the weight of material shipped is usually insignificant. However, the high cost per pound of transporting via these modes, as shown in Figure III-2, results in considerable expenditure of funds. These modes also happen to have a relatively flat distance relation—ship to transportation cost, shown in Figure III-3.
- b. Inappropriate use of <u>MTMC rates</u>. Previous methodologies [1] computed SDT cost for truck shipments by computing ton-mile flow for different distribution networks and then translating the ton-miles to dollars by use of a MTMC published rate of \$/s-ton/mile. The use of this rate implies that SDT cost is directly proportional to weight and distance.

- (1) Does doubling the weight of a shipment double its shipping cost? If not, then SDT is not directly proportional to weight. For guaranteed traffic, the cost per truckload is fixed regardless of the weight of the shipment. For less than truckload shipments, regression analyses indicate that SDT cost is not directly proportional to weight but is non-linearly related (Table III-9). For example, quadrupling the weight of a less-than-truckload shipment will approximately double the shipping cost.
- (2) Does doubling the distance travelled double the shipping cost? If not, then SDT is not directly proportional to distance. The actual cost of motor shipments (versus price) is made up of many components such as fuel, maintenance, depreciation, labor, insurance, etc. Some of these components are affected by mileage, some are not. Another viewpoint is to consider a shipment as three sequential steps: loading, moving, and unloading. Only the moving step has costs that approximate proportionally to distance. The loading and unloading time and cost is unrelated to distance between source and destination. Hence, a linear model such as Cost = Fixed Cost + Variable Cost X Distance is appealing from a logical point of view. A quick look at Figure III-1 verifies the linear but not proportional relationship between cost and distance for guaranteed traffic.
- B. Increasing the number of Army depots in the Army distribution network does not significantly reduce Second Destination Transportation costs. The following factors explain the reasons why SDT cost is "flat" in Table III-13.
- 1. Many of the Army's largest installations are already located closest to the existing AODs. Adding more depots, especially beyond ANAD, does not significantly alter distribution flow patterns within CONUS. See, also, discussion in Chapter VII, paragraph IIIB2.

- 2. The relationship between shorter distances and lower transportation costs is not as sensitive as some believe.
- 3. Out-of-Area shipments consume a great deal of the transportation dollars. Adding more depots will not solve this problem, better stock positioning policies could significantly reduce SDT expenditures.

Table III-1. Mode of Shipment Codes: LIF

MODE	Air Express Air Charter	Air Freight Forwarder	QUICKTRANS (Navy)	Sea-van service	Water, river, Jake	(coastal-commercial)	Sealift Express Service	Intratheater airlift system	Military Sea Transport Service	(controlled/contract arranged space)	Gov watercraft, barge/lighter	Roll on/off service	ARFCOS (Armed Forces Courier Service)	United Parcel Service	MOM (Mil Ordinary Mail)	Meapons System Pouch Service	PIPELINE	Local Delivery (Incl deliveries	between air or water terminals, etc)
CODE	œ v	<b>-</b>	>	>	3		×	<b>&gt;</b> -	7		7	က	4	ഹ	9	7	œ	6	
MODE	Motor, truckload Motor, less truckload	Van (unpacked, uncrated, persona)	and/or Gov.)	Driveway, truckaway or towaway	Busline	MAC (Mil Airlift Command)	Surface, parcel post	٤	Gov. truck & common service	Œ	Rail, carload	Rail, less carload	•	LOGAIR	Organic Military Air	Through Bill of Lading	Air Freight (Commercial)		
CODE	≪ ⊄	ပ		0	u	u.	g	x	-	ت.	¥	_	I	z	0	۵.	0		

TABLE III-2. Guaranteed Traffic Information - Truck Shipments (FY 85)

Source	Destination	Cost Per Load(\$)	Avg Wt Per Load <sup>1</sup>	Distance (miles)	Frequency (per week)
NCAD	Bragg	397	11.3	430	3
HOAD	SHAD	2450	13.1	2739	3 2 2 2
	ANAD	712	10.0	773	2
	LEAD	165	12.3	47	2
	Bayonne	290	8.5	168	ar <sup>2</sup>
	TOAD	275	11.0	127	ar
	Mech'bg	100		7	ar
RRAD	ANAD/McC1n	565	14.7	530	
	Carson	1127	15.0	849	
	Benning	668	13.0	635	
	Stewart	865	14.4	872	
	Po1k	350	15.1	210	
	Knox	540	14.4	648	
	NC AD	1181	14.4	1208	
	Riley	530	14.0	533	
	SHAD	1845	14.2	1790	
	Hood	452	10	326	
	Hood	552	15	326	
	Hood	672	20	326	
SHAD	Pendleton	500		415	1
	McClelland	168		55	
	0ak1and	220		67	
	TEAD	500	12.9	692	
	TE AD	754	12.9	692	1
	TEAD	843	12.9	692	
	Stockton	100		5	
	Irwin	436	12.3	380	3
	Travis	195		57	
	Lewis	800	10.5	<b>75</b> 8	3 3 3
	NC AD	2188		2739	3
	0rd	300	6.6	141	3

 $<sup>1</sup>_{1984} \ \mathrm{MTMC} \ \mathrm{FINS} \ \mathrm{in} \ \mathrm{short} \ \mathrm{tons}$ 

<sup>&</sup>lt;sup>2</sup>as required

Table III-3. Sample Page from Logistics Intelligence File Report

CUMPEFIAND AL	I SIE PALLIFUL I JE REPLIKT WETCHT. CIPE & VALUE ANALYSTS	BASED IN CONUS EFPER SHIPMENTS FOR INC CY 14	SUMMARY STRATTFICATION BY DEPUT AND INSTALLATION
UPUT NAME; NEW CUMMENTAND AL	1 SIP PALJECT JJS REPLAT	BASED IN CUNUS LIFPE	SUMMARY STRATIFICATION

EXTENDE L VALUE DCLL AR S	16.757.66	64,656.17	4.613.40	1,565,00	171 ,760.01	107,204.02	4,665,412.58	474,216.61	1,090.74	5,521,301.39	149.914.65	٦.	2,610,297,14	2,543.66	162,411.00	658.414.69	. 204 ,243,75	16, 181,743,73	254,395.96	246.60	21,207,249,17	72.562.28			( 0 · 0 · 0 · 0 · 0 · 0 · 0 · 0 · 0 · 0	20.2000	17.522001	43 649 34	100000000000000000000000000000000000000	06.516.511.0	•	0 + 10 / - 40 4 - R		55,804,26	634.644.19	7,541.65	38,830,62	13,754.42	105.204.38	1,195,534,67	241,564.07	4,713,19	2,400,655.15		
E X TENDE C CUE IC FEE I	30,055	122.863	52.606	.193	<.106.169	479.661	tl,556.459	396.680	4.326	64.242.658	26.339	735.261	1,050,152		46.56	1.71.639	155.118	075.496.73	120.560	900 •	:4,152,706	127.740	45.5.494	4.00 a 2.00 a 2.	605.60	304	375.	1 - 46 2 - 745	100 TO 10	100 1 1 C 1 C	2000 - 20	731 - 40T - C4		32.605	639.669	204.903	1.757	10.467	4.995.675	14,561,511	10056.275	2.441	19,085,893		
EXTENDEC HEIGHT PUUNDS	634.50	2,344.05	450.67	9 <b>)*</b> F	21,958,15	12.911.21	19: ,237.22	7,912,56	11.26	E37,126.67	5 12.90	3,763.65	13,554,64	.63	1 • 1 24 • 00	14,556.01	3,457.98	347,563,52	1,471,25		362,528,73	1.712.41	21.27.63.44	43.17.55	750-75	27.51	31 54 54 7	17.4.17.46	37 37 447	201 30 TE 100	931111133	5 5 7 5 7 5 3 T		047.40	15,031,71	4,115.62	21.41	6.543.63	54.2466.77	341, \$114.77	27.06.26.16	64.54	44 F . 4 16.93		
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Table III-4. Example of MTMC Freight Information Systems Report

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PAGE NO.																																											
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N-5-5-017	WEIGHT	73	. 26.	) <b>G</b>	468	74	324	<b>6</b>	46	900	> 96 -	<b>1</b> 00	300	112	. o.	0 .	\ <u>0</u>	100	136	99	93	CC (	<b>30 00</b>		0-1	338	5.	20		1 60 K	784	<b>6</b> 0	24 C	00 G - (1	, c	) <del>(</del>	. <b>6</b> 0	36	60	700	260	240	66
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Table III-5. Zone Chart for NCAD and LEAD

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	I		1	5	_		
	For S	For Shippers with		ZIP Codes 170 01 to 172-99	0110	72.99	3
8	Service	to 48 C	Contin		United	1 States	1
ZIP CODE	58	ZIP CODE	58	ZP CODE	¥ 2	SIP CODE	3 8
919-919	-	16.18	~	421-438	•	78.6	^
	•			437-447		11-97	•
P20-020	n	720-227	~	21.41	•	780-785	^
225-628	•	Z + ZZ	•	457	n	785-787	•
27-628	~	242	•	150-487	•	5	1
220-023	•	243-253	•	87 787	s	789-792	•
3	n	7.	~		1	36.086	^
8	•	255-257	•	<b>500-508</b>	w	785-786	•
8	n	786-284	~	510-511	•	787-786	7
37-060	•	92	~	\$12-528	8		1
51-063	6	200	m	530-534	•	800-831	~
1	•	267-286	~	535-564	*	132-444	•
2	0	270	•	3	•	3	^
3	•	77.	*	3	\$	798-91	•
Ŀ	•	272-274	~	567-587	•	185-884	~
850 <u>1</u>	•	275-277	•	586-586	1	880-688	•
8	C	278-278	6	<b>504-500</b>	•		1
200	~	280-286	•		1	196-981	•
				<b>809-009</b>	•	970-986	•
28-165	7	300-308	•	410-617	vs.	16.1	•
8	0	310	'n	919-10	•		
107-116	~	311	•	£20-6£7	s		
15.126	0	312	s	=======================================	•		
22	~	313-314	•		1		
8	n	315-330	s	700-703	•		
8	•	342-366	•	ş	s		
35.13E	_	370-374	•	706-71	•		
37-138	~	376	s	712	50		
46 147	•	376-378	•	713-714	•		
<b>\$</b> 1 <b>\$</b>	~	380-384	•	716-717	s		
313	•	*	•	7.	•		
£	~	786-387	s	719-729	50		
=	-			730-748	•		
2	~	100	•	749	•		
					•		

UPS Rates Effective 1 Jan 85 Cost Per Package Table III-6.

Sdn		5	ROUN	IS OF	GROUND SERVICE	띗	
3:	_		GRO	GROUND ZONES	SANC		
2007	2	3	•	\$	9	ı	•
- 10	\$1 23	\$1.32	97 18	\$1 52	\$1 59	29 18	8174
. 7	124	2	3	1.73	187		
-	-33	3	38	ž	2.15	5 36	2 57
-	9	161	1.97	2.16	2.43	2 70	
: 5	-	1.76	2 13	237	2.70	3 05	3.40
	1.57	1 89	2 30	2 59	2 98	3 39	3 62
	1.65	202	247		3 26	374	124
	173	2.12	2 64		3.54	8	4 65
•	182			323	3 82	644	503
2	8	2.30	297	344	8	477	3
. 11	- 8	25.2	314	366	437		8
: 2	28	2.65	33		4 65		
=======================================	2.15	2.77	346	8	193	5.81	673
=	223	2	365	8	5.21		
-			•		***		, , ,

TABLE III-7. Summary of Truckload Cost Estimating Rélationships

Depot	Destination <sup>1</sup>	Equation	R <sup>2</sup>
NCAD	Guaranteed traffic	Actual cost	
NC AD	Non-Guaranteed	$C_{111} = 302.204 + .617769d_{11}$	.83
RRAD	Guaranteed traffic	Actual cost	
RRAD	Non-Guaranteed	Cl21 = 195.172 + .796629d21	.62
SHAD	Guaranteed traffic	Actual cost	
SHAD	Non-Guaranteed	$C_{131} = 447.58 + .7576d_{31}$	.69
Others	Guaranteed traffic	$C_{1k1} = 161.566 + .81777d_{k1}$	.96
Others	Non-Guaranteed	$C_{1k1} = 248.7 + .707d_{k1}$	N/A

 $C_{1k}$  is the cost per truckload from depot k to destination 1.  $d_{k}$  is the distance between depot k and destination 1.

 $<sup>^{\</sup>mathbf{1}}$  Table III-2 specifies guaranteed traffic destinations.

TABLE III-8. Summary of Truckload SDT Analysis

Alternative	Appendix E Cost \$K	Inflation <sup>1</sup> Adjustment	AMDF <sup>2</sup> Adj	LIF <sup>3</sup> Adjustment	Truckload \$85K
1	2782	1.014	1.029	1.057	3068
1A	1875	1.014	1.029	1.057	2068
2	2604	1.014	1.029	1.057	2872
3	2519	1.014	1.029	1.057	2778
4	2411	1.014	1.029	1.057	2659
5	2370	1.014	1.029	1.057	2614
6	2370	1.014	1.029	1.057	2614

Non-guaranteed truckload data (51% of truckloads) must be escalated from CY 84
to FY 85 (9 months).
OMA rate for FY 84 to FY 85 is 1.037 . Factor is1+[.51 X 9/12 X .037] = 1.014

TABLE III-9. Cost Estimating Relationships for Less-Than-Truckload Shipments. C is Cost per LIF Line (CY 84\$)

Depot	Number of	Number of	<sub>R</sub> 2	Equati	on C = A	B <sub>1</sub> B <sub>2</sub>	
	GBLOCs <sup>1</sup>	GBLs	· · · · · · · · · · · · · · · · · · ·	Α	81	B <sub>2</sub>	
NCAD	347	1705	.86	.134	.508	.246	
RRAD	208	966	.73	.044	.516	.383	
SHAD	199	1084	.90	.029	•599	.356	
Other				.055	.541	.328	

 $<sup>^{1}</sup>$  GBLOC is the destination identification number.

<sup>22.9%</sup> of the LIF data records had zero unit weight and cube entries from the AMDF

<sup>&</sup>lt;sup>3</sup>5.7% of the LIF AOD shipments were destined to "other" than the 78 identified destinations.

TABLE III-10. Summary of Less-Than-Truckload SDT Analysis

Alternative	Appendix E Cost \$K	Inflation Adj <sup>1</sup>	AMDF Adj	LIF Adj	FY 85 \$K Total SDT LT Truckload
1	2378	1.028	1.029	1.057	2659
1A	2034	1.028	1.029	1.057	2274
2	2296	1.028	1.029	1.057	2567
3	2279	1.028	1.029	1.057	2548
4	2212	1.028	1.029	1.057	2473
5	2200	1.028	1.029	1.057	2460
6	2200	1.028	1.029	1.057	2460

<sup>1 9/12</sup> of 1.037

TABLE III-11. Summary of Small Package SDT Analysis

Alternative	Appendix E Cost \$K	Inflation Adjustment	AMDF Adj	LIF Adj	FY 85 \$ Total SDT Small Package
1	749	1.000	1.029	1.057	815
1A	620	1.000	1.029	1.057	674
2	728	1.000	1.029	1.057	792
3	722	1.000	1.029	1.057	785
4	710	1.000	1.029	1.057	772
5	709	1.000	1.029	1.057	771
6	709	1.000	1.029	1.057	771

TABLE III-12. Summary of Air SDT Analysis

Alternative	Appendix E Cost \$K	Inflation Adjustment	AMDF Adj	LIF Adj	FY 85 \$K Total SDT Air
1	2172	1.028	1.029	1.057	2429
1A	2172	1.028	1.029	1.057	2429
2	2172	1.028	1.029	1.057	2429
3	2172	1.028	1.029	1.057	2429
4	2172	1.028	1.029	1.057	2429
5	2172	1.028	1.029	1.057	2429
6	2172	1.028	1.029	1.057	2429

TABLE III-13. Summary of Annual SDT Cost - FY 85 \$M. CONUS - Class IX

Alternative	Truckload	Modes Less Than Truckload	Small Package	Air	Total
1	3.07	2.66	.82	2.43	9.0
1A	2.07	2.27	.67	2.43	7.5
2	2.87	2.57	.79	2.43	8.7
3	2.78	2.55	.79	2.43	8.5
4 -	2.66	2.47	.77	2.43	8.3
5	2.61	2.46	.77	2.43	8.3
6	2.61	2.46	.77	2.43	8.3

TABLE III-14. Validation of Mode Distribution - % of \$

	Truckload	Less Than Truckload	Small Package	Air	Total
Model Results	34	30	9	27	100
306 Report					
Percentage	45	29	7	19	100

TABLE III-15. Validation of Cost Per Pound

	MODE				
	Truckload	Less Than Truckload	Small Package	Air	
Model Results (Appendix E)	.035	.118	.405	1.223	
306 Report:					
NCAD RRAD SHAD	.030 .038 .033	.103 .107 .122	.143 .454 .723	.61 1.13 1.54	
Simple Avg	.034	.111	.440	1.093	

TABLE III-16. Army Stock Fund Transportation Data FY 84 and FY 85

Command	% SDT Surcharge1	% Transport Surcharge <sup>2</sup>	FY 84 Surcharge \$M2	FY 84 Actuals	% Variance	FY 85 Surcharge \$M2	FY 85 Actuals	% Variance
AMCC0M	2.0	3.4	10.54	5.0	-53	12.60	8.0	-37
AVSCOM	1.8	3.4				9,35	3.8	-59
CECOM	1.3	2.7	3.99	4.0	0 +	4.10	00.9	+46
MICOM	2.5	3.9	2.92	1.04	-64	3.05	1,28	-58
TACOM	3.0	4.9	29.10	20.3	-30	30.01	22.2	-26
TROSCOM	. 1.8	3.4	4.07	1.86	-54	4.67	2.82	-40
TOTAL			50.62	32.2		63.78	44.10	
AVG					-36			-31

<sup>1</sup>From Commodity Command Standard System, Vol 1, CCSSOI-18-700-101.

<sup>&</sup>lt;sup>2</sup>From CSGLD-1111 Report, Pricing Analysis Army Stock Fund - Includes FOT and SDT, all depots, CONUS and OCONUS.

E-02

#### SCATTERGRAM

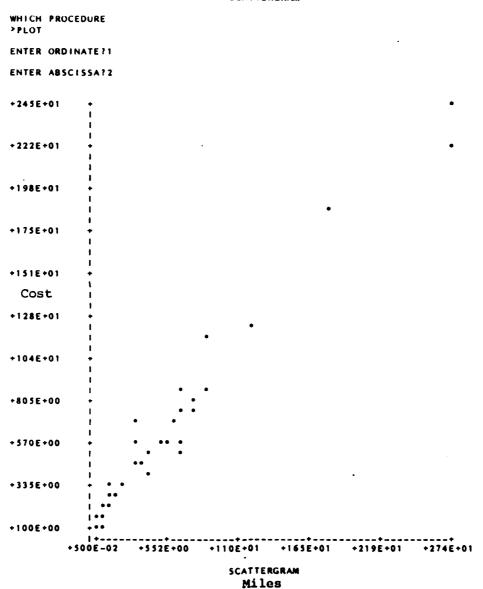


Figure III-1. Relationship Between Cost Per Shipment (FY 85\$) and Distance in Miles for Guaranteed Truckload Shipments.

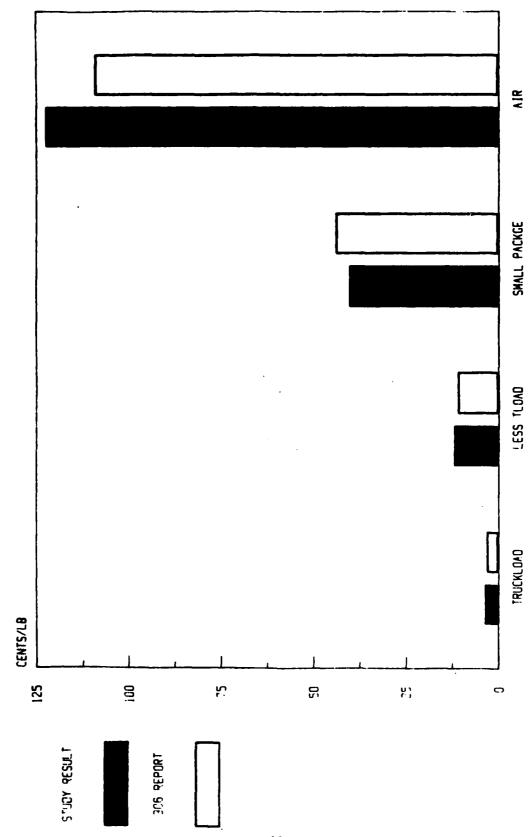


Figure III-2. Average Transportation Cost Per Pound

MODE

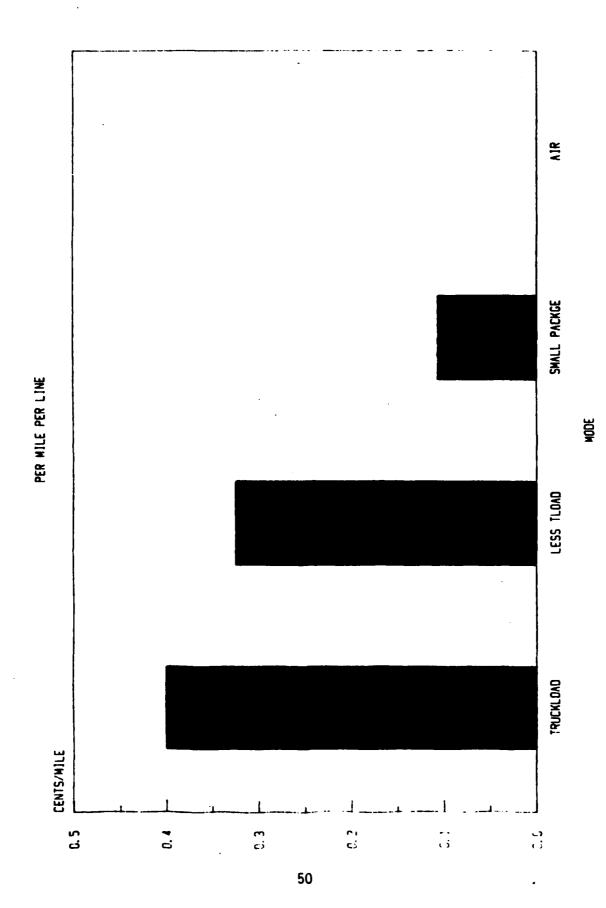


Figure III-3. Average Marginal Transportation Cost

### Chapter IV. DEPOT OPERATING COSTS (SUPPLY)

# I. <u>Introduction</u>.

- A. US Army Depots provide a wide range of operating services for the Army, DOD, and Foreign Military Sales customers. The two dominant functions are Supply and Maintenance Operations. Supply and Maintenance are organizationally distinct and separate financial reports are available. Both missions are resourced through the Army Industrial Fund (AIF) whereby the customer (usually the AMC commodity command) is charged for the work performed. Supply functions are normally charged on a fixed price basis. A fixed charge for each issue and receipt is determined based on standards and AIF adjustments to balance gains or losses from the previous fiscal year.
- B. The primary source of supply operating costs within Army depots and depot activities is the Depot Operating Cost and Performance Report (AMC Depots), RCS, AMCSM-305. This quarterly report, commonly referred to as the "305 report," is published by HQ DESCOM based on input from 17 Army depots and depot activities. The format of the report is based on Army Management Structure (AMS) codes in accordance with AR 37-100-XX for the Operating and Maintenance, Army (OMA) appropriation program element 721111, Supply Depot Operations.

# II. Methodology.

A. General description. Whereas costs for Alternative 1, status quo, are readily available from the 305 report, the impact of reallocating lines based on the other stock positioning alternatives requires a predictive cost model. This model must be sensitive to differential operating costs at various depots and the changes that would occur at a given depot as its workload changes.

A simple non-linear regression model was developed based on actual historical

costs to predict an average hourly rate for direct labor and overhead as a function of workload expressed in lines shipped per year. The number of lines shipped for each depot under each alternative was developed based on proximity to demand as determined from Logistics Intelligence File (LIF) data. Assuming that the actual average direct labor content (manhours) per line shipped (Class IX) does not vary from depot to depot, a standard labor content per line was derived from the 305 report. A simple VISICALC<sub>tm</sub> program was designed to generate a cost estimate for each alternative by the following equation:

CONUS Army Class IX Supply Depot 
$$=\sum_{j=1}^{8} Rate_{ij} X Std X Lines Shipped_{ij}$$

i = Alternative number

 $i = 1, 2, 3 \dots 6$ 

j = Depot identification number

 $j = 1, 2, 3 \dots 8$ 

Ratejj = Hourly rate for depot j under alternative i

Std = Manhours per lined shipped, Class IX

Lines Shipped<sub>ij</sub> = Army CONUS Class IX lines shipped at depot<sub>j</sub> under alternative i.

B. Underlying principal of this methodology is a hypothesis that large supply depots are inherently more efficient than small supply depots. This premise is theoretically expressed in numerous economics texts as the principle of Economy of Scale [17,18]. A cursory glance at the fixed rates shown in Table IV-1 indicate that the principal exists within Army depots and depot activities. The larger depots (NCAD, RRAD, and SHAD) tend to have much lower than average rates whereas the smallest activities (FWDA, UMDA, and SVDA) have much higher than average rates. To quantify the relationship between hourly

<sup>&</sup>lt;sup>1</sup>VISICALC is a trademark of Personal Software, Inc.

rate and workload, regression analysis was used and the student-t and F-tests were used on the regression results to test this hypothesis.

#### C. Sources of Data -

- 1. Hourly rates. Early attempts to develop separate rates and functions for receipt, issue and storing functions were abandoned because of poor correlation. Thus, it was decided to use a single composite rate for all depot supply functions. Initial attempts relied on AIF rates shown in Table IV-1. However, because of end-of-year adjustments and the resulting erratic changes from year to year within the same depot, it was decided to use another source. Ultimately, the hourly rate data selected was based on actual cost from the 305 report for each depot as follows:
- a. Although data from FY 81-FY 84 was available, only data from FY 83-FY 84 was used because of a major change in accounting philosophy which took place at the end of FY 82. There was a noticeable discontinuity in manhours and hourly rate at this time caused by a redefinition of "direct labor."
- b. Navajo Depot Activity was excluded from the analysis because of its dearth of "other supply" mission and because its indirect costs are absorbed by Tooele Army Depot.
- c. Actual hourly rates shown in Table IV-2 were determined by dividing the total funded cost by the total direct civilian manhours as follows:
  - (1) Total funded cost was computed with two necessary adjustments.
- (a) Leave. Paid leave (page 1, line 6, column N) was added to the total funded cost for all customers (page 1, line 2, column N) because leave manhours and costs are not included in PE 721111 yet it is a real cost of depot operations.

- (b) Containerization Consolidation Point (CCP) Ops. NCAD and SHAD have considerable costs associated with OCONUS shipments that appear on page 11, line 10, column N, all customers, labelled "CCP Operns OS." Since these costs are outside the scope of the study (see Vol 1, III.A.3.) and because there is a significant accounting difference between NCAD and SHAD, this cost was subtracted from the total funded cost.
- (c) All costs used were converted to FY 85 constant dollars by using the OMA compound index developed by OSD [21]. FY 83 rates were multiplied by 1.0764 and FY 84 rates were multiplied by 1.0370.
- (2) Total civilian manhours. For each depot the total civilian manhours was computed by subtracting CCP manhours from the total manhours per logic in para II.C.1.c(1)(b) above. Mathematically, for all customers, page 11, line 10, column H was subtracted from page 1, line 2, column H.
  - 2. Workload indicators.
- a. Weight. Short tons shipped data is available from the 305 report. Poor correlation with hourly rates resulted in abandoning this measure.
- b. Lines shipped. Total lines shipped from the 305 report was used to measure workload. This is the sum of ammo lines and other supply lines, since the hourly rates include the cost and hours of ammo as well as other supplies. Ammo was included because some of the smaller activities and depots have a significant ammo function, which if excluded would present a false picture of the overall workload of the activity. Lines shipped for each depot in the data base for the predictive model are shown in Table IV-2.
  - D. Analysis.
    - Hourly rates (Rate; j).

- a. Data in Table IV-2 was analyzed to find the "best" relationship between the hourly rate and lines shipped. Numerous linear and nonlinear models were investigated. In addition, separate analyses were run by excluding certain unusual depots and by excluding all depot activities. Fine tuning the data base provided no tangible improvements in correlation and thus the entire data base was used.
- b. A non-linear model of the form of a power function was selected because of superior correlation. This model is generated by a logarithmic transformation of the data in Table IV-2 prior to the regression analysis. Statistical results of the analysis are provided in Table IV-3. The t-ratio and the F-value are highly significant, indicating that the data supports the hypothesis that large depots are more efficient than small depots.
- c. The resulting model, Rate $_{ij}$  = 302 X Lines Shipped $_{ij}$  -.17392 \$/Hr, is shown graphically in Figure IV-1. This model is programmed into the VISICALC model of the para IIA equation shown in Tables IV-4 through IV-10. Values shown for "LABOR RATE" and "NEW RATE" are derived from the predictive model. Note that these rates are based on total lines shipped (including DLA items and OCONUS), not simply on CONUS lines (the last two columns of the Table).
  - 2. Manhour standard (std).
- a. Knowledgeable experts at HQ DESCOM indicated that the time to process an item at a depot varies considerably depending on the nature of the item. The time to process a like item will not vary considerably from depot to depot. It was estimated that processing times should be  $\pm$  10% for the same item at different locations.
- b. Recognizing that different depots store and handle a different mix of items, the standard hours for Class IX, Army items could best be estimated

by concentrating analysis at the existing AODs. By subtracting 305 report ammo lines and manhours from the total lines and manhours at each depot, the average manhours per line ranged from .89 to 15.83 in FY 84. However, at the three AODs, the range was only 1.318 manhours/line to 1.812 manhours/line. An average for the three AODs was 1.529 manhours/line shipped. This value was assumed to be a representative for a Class IX Army item regardless of stock positioning point. This standard is for all Supply Depot Operating costs to include receipt, shipping, care of material in storage, unit and set assembly, depot technical assistance, inventory, rewarehousing, care of supplies in storage, inspection, traffic management and miscellaneous support functions.

- c. The manhour standard of 1.529 manhours/line shipped was used in Tables IV-4 through IV-10 to compute the column "MANHOURS" by dividing the LINES columns by 1.529.
  - Lines shipped (Lines Shipped<sub>ij</sub>).
- a. The lines shipped CONUS, Class IX to Army customers in Table IV-4 under the heading of "CURRENT LINES CONUS" was determined from actual LIF data gathered during CY 84 (see Appendix B).
- b. The lines shipped under the heading of "PROPOSED LINES SHIPPED" in Tables IV-5 through IV-10 are found by geographically reallocating demand based on the boundaries shown in Figures C-1 through C-6, Appendix C.
- 4. Summary. This approach indicates that depot operating costs will increase as more depots are added to the distribution network. The primary cause of this increased cost is because the new depots are smaller and hence less efficient than the existing depots from which workload will be taken. Summarizing Tables IV-4 through IV-10, the total cost and cost differentials from the baseline are shown for each alternative in Table IV-11.

E. <u>Model Validation</u>. To ensure that the predictive model used in this analysis was reasonably accurate, the model was used to predict first quarter FY 85 rates at the sixteen Army depots and depot activities. These predictions were compared to actuals and the differences noted. Results are shown in Table IV-12. It is concluded that the model has high accuracy with moderate precision.

## F. Sensitivity Analysis.

- 1. The assumption that the standard manhours/line shipped for a like item is the same from depot to depot can be questioned. This is particularly true if one depot is more highly automated than another. The Army has a program, called AOD Modernization, which, if implemented, will significantly upgrade NCAD, RRAD, and SHAD. An automated warehousing concept will improve efficiency, reduce cost and increase capability. It is estimated that under modernization, workload that is currently being done on three shifts and weekends can be reduced to a single shift.
- 2. According to an economic analysis done for SHAD [10] annual operating costs under AOD Mod will be reduced by 34.1%. Assuming the percentage reduction will also apply at RRAD and NCAD, the VISICALC model was recomputed by factoring a 34.1% reduction in the manhour standard for the existing AODs. The results are shown in Tables IV-13 through IV-19 and summarized in Table IV-20. The increased cost differential above and beyond that predicted in Table IV-11 can be explained by the fact that work is not only reallocated from large to small depots (Economy of Scale effect) but also from modernized to un-modernized facilities.

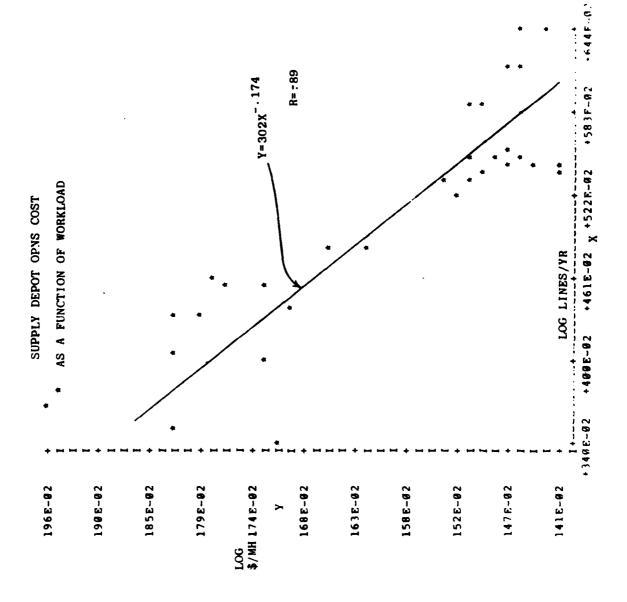


Figure IV-1. Supply Depot Opns Cost as a Function of Workload

CATEGORY: Resources UPDATED: Annually

SOURCE: Comptroller, AIF Branch

POC: -SOR

TABLE IV-1. SUPPLY FIXED RATES BY DEPOT

DEPOT	FY81	FY82	FY83	FY84	FY85
ANAD	22.29	29.77	27.46	25.55	28.31
LBDA	27.53	34.99	36.37	32.01	42.92
CCAD	10.51	22.93	26.65	25.07	29.17
LEAD	26.43	25.34	28.62	26.68	31.52
SVDA	55.37	38.83	55.78	45.65	54.07
NCAD	21.74	22.40	23.53	22.99	30.33
RRAD	22.44	23.24	24.37	23.22	34.83
SAAD	21.16	19.27	20.92	20.83	27.20
SEAD	42.95	47.66	60.23	37.62	60.10
SHAD	25.16	23.94	27.09	25.33	33.89
SIAD	53.00	57.08	70.58	50.20	63.12
TOAD	19.83	19.91	23.00	20.21	23.56
TEAD	30.28	21.81	27.59	29.57	30.93
FWDA	83.45	94.01	68.47	69.76	85.84
PUDA	37.38	31.41	40.15	36.87	43.10
UMDA	102.42	82.46	103.92	57.75	77.21

TABLE IV-2. Actual Hourly Supply Rates (FY 85 \$/HR) and Lines Shipped by Depot

FY	83	FY	84

DEPOT	HOURLY RATE	LINES SHIPPED	HOURLY RATE	LINES SHIPPED
ANAD LBDA CCAD LEAD SVDA NCAD RRAD SAAD SEAD SHAD SIAD TOAD TEAD FWDA PUDA UMDA	32.6042 42.0765 28.7399 30.5805 67.0274 26.3826 28.277 27.2329 59.4819 30.9788 62.8187 26.0812 33.3684 66.5646 52.4422	228643 71883 321157 310066 10894 2.68989E+06 1.47394E+06 286322 39348 724637 22960 249897 170650 3082 35132 4988	31.7322 45.7421 29.8449 32.4477 53.5299 28.2064 29.2019 29.1086 58.6009 32.4685 65.5799 25.925 34.7188 51.1034 49.7034	238754 69250 358176 302176 10568 2.72676E+06 1.51846E+06 293528 38205 758967 22364 245601 217356 2493 26182
		7700	86.5169	5759

TABLE IV-3. Regression Statistics for Predictive Cost Model of the Form Y =  $AX^B$ 

STATISTICS	VALUE	COMMENT
Coefficient A	302	\$/HR
Coefficient B	173924	<b>5.1</b> 2.1 4.2 4.2.
Coefficient of Determination $(\mathbb{R}^2)$	.791	Ratio of Total Variation
Coefficient of Correlation (R)	889	
Degrees of Freedom	30	Equals data points minus 2
Std Error of Estimate	.0754	Logarithmic value (\$/HR)
t-ratio for coefficient B	-10.6539	Significant at $\alpha < .01^1$
F value	113.512	Significant at $\alpha < .01^2$

 $<sup>^{1}\,</sup>$   $^{\alpha}$  or Type I error represents the probability that the coefficient is actually equal to zero. A zero coefficient would indicate that depot workload has no influence on hourly rate.

 $<sup>^2</sup>$   $\,$   $\alpha$  Represents the probability that  $\text{R}^2$  = 0. If  $\text{R}^2$  = 0, there is no statistical relationship between the variables.

Supply Depot Operating Costs for Alternative One for CONUS, Class IX Army Stock (FY 85 \$) TABLE IV-4.

LABOR RATE		DEPOT	PROPOSED LINES CONUS	MAN	RATE	NEW OPS OPS COST COST CHANGE	OPS COST CHANGE	Baspline Lines	NEW TOT LINES
22.95.6	, 6	601339	439892	287699	22.95	6661339		2726762	2726762
25.48	-	1.13467	682458	446343	25.40	1.13467	•	1518464	1518464
28.66 35	~	62298	198839	12429@	28.66	3562298	9	758967	758967
35.05 29	2	8668	12695	8383	35.05	298998.	•	238754	238754
43.47 36	2	6000	12875	8421	43.47	366000	9	69250	69228
33.63.66	99	7799.	30362	19857	33.63	661799.	<b>5</b>	302717	382717
51.48.15	2	1.15	453	296	51.48	15251.1	•	26182	26182
35.62 15	5	6488	6429	4224	35.62 1	150488.	•	217356	217356
1	1		1 1 1 1 1 1 1			1 1 1 1 1 1	* * * * * * * * * * * * * * * * * * * *	11111	1 1 1 1
2.	2	299E7	1375233	899433		2.299E7	•	5858452	5858452

PARAM B 1.529
PARAM C 302
PARAM C 17392

Supply Depot Operating Costs for Alternative One-A for CONUS, Class IX Army Stock (FY 85 \$) TABLE IV-5.

ALT NO, ONE A IDFAE CASE

LINES	2689464 1634868 759861 238754 69258 382717 26182 217356	
BASELINE	2726762 1518464 1518464 1518464 1518464 2318754 69256 302717 217356 217356	
NEW NEW OPS OPS COST RATE COST CHANGE	23.12 4878243 -1.72E6 25.08 1.310E7 1764648 28.66 5578324 16025.4 35.05 299990. 0 43.47 366000. 0 33.63 667799. 0 51.48 15251.1 35.62 150488. 2	
MAN	210984 522474 124874 8303 8421 19857 296 4224	
PROPOSED LINES CONUS	322594 196913 12695 12875 12875 36162 463 6459	
R DEPOT COST	95 6681 139 40 1.134 E7 66 1562 298 47 3668 40 63 667 799 63 1595 1.1 62 1594 88.	
LABOR RATE	22.95 25.40 25.40 35.66 33.63 51.48 51.48	
MAN	287699 446343 124290 8303 8421 19857 29. 4224	
CURRENT LINES CONUS	Fran 439892 28769 Fran 682458 44634 SHAD 196039 12429 Fran 12695 813 Fran 12875 845 Fran 18362 1986 Fran 453 25 Fran 6459 425	
¬EPOT	NCAD RRAD SHAD SHAD ANAD LINA LI AD PUDA FFAD	

FARAM A 1.52 PARAM C 38 98 PARAM C 38 PARAM D -. 1739

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Supply Denot Operating Costs for Alternative Two for CONUS, Class IX Army Stock (FY 85 \$) TABLE IV-6.

> ALT NO. TWO COST PER YEAR FY85 \$

NEW TOT LINES	2719389 1281994 758967 482597 69259 36217 26182 217356	8 5 8 4 5 K
	,,,,,	'
BASELINE LINES	2726762 2726762 1518464 758967 238754 69259 302717 26182 217356	7610606
NEW OPS OPS COST COST CHANGE	3493751 362298 362298 3282827 4911837 366090 366090 3667799 3667799 3667799 3667799 3667799 3667799	0.006
NEW OPS	22.96 6493751 26.16 7631584 28.66 3562298 31.01 5202827 43.47 366000. 51.48 15251.1 35.62 150488.	77646.7
NEW I	22.96 26.16 28.66 31.61 43.47 33.63 35.62	
MAN HOURS	282877 291686 1291686 167782 167782 19857 19857 4224	11660
PROPOSED LINES CONUS	196639 256538 196639 256538 12875 36362 6459	
DEPOT	22.95 6681339 25.40 1.134E7 28.66 3562298 35.65 3562298 43.47 366889 33.63 667799 51.48 15251.1 35.62 158488.	
LABOR RATE	22.95 28.66 35.66 35.66 43.47 43.43 35.65 51.48	
	287699 124298 124298 8383 8421 19857 4224	
CURRENT LINES CONUS	NCAD 439892 RRAD 682458 SHAD 196939 ANAD 12695 LEDA 12875 LEAD 39362 PUDA 453 TEAD 6459	1.529
DEPOT	NCAD RRAD SHAD SHAD ANAD LEBDA LEAD PUDA TEAD	PARAM A PARAM B PARAM C

Supply Depot Operating Costs for Alternative Three for CONUS, Class IX Army Stock (FY 85 \$) TABLE IV-7.

OALT NO. THREE COST PER YEAR PY85 \$

DEPOT	CURRENT LINES CONUS	MAN	LABOR	DEPOT	PROPOSED LINES CONUS	MAN	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE Lines	NEW TOT LINES
MCAD	MCAD 4 20802	287690		777777777777777777777777777777777777777		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 6	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1
	40000	20102		6661800	432319	//8787	74.9	0493/51	/8C/AT-	2726762	271938
KKAU	864789	440 54 5		1.13467	395868	258378	26.35	6887951	-4.53E6	1518464	123106
SHAD	198839	124290		3562298	166336	108787	28.82	3135237	-427861	758967	73526
ANAD	12695	8363		298998.	256538	167782	31.01	5202827	4911837	238754	48259
LBDA	12875	8421		366000.	12875	8421	43.47	366999	9	69250	6925
LEAD	30362	19857	33.63	667799.	30362	19857	33,63	661199.	6	302717	30271
<b>P</b> UD <b>A</b>	453	296		15251.1	453	296	51.48	15251.1	9	26182	2618
TEAD	6459	4224		150488.	81696	53035	33.84	1794770	1644282	217356	291987
•	1	1 1 1 1 1 1 1 1 1	•	****	111111	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 1 1 1 1 1	1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1
TOTAL	1375233	899433		2.299E7	1375233	899433		2.448E7	1490265	5858452	5858452

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Supply Depot Operating Costs for Alternative Four for CONUS, Class IX Army Stock (FY 85 \$) TABLE IV-8.

	23	2726762 2656557 1518464 758967 28967 28967 28754 406647 69259 392717 26182 217356 28182 28182 28182 28182 28182 28182 28182 28182 28182 28182	
	0	23.05 5573017 -1.03E6 26.27 7160626 -4.18E6 28.82 3135237 -427061 31.95 3773208 3482219 36.59 3109393 2743393 33.63 667799. 0 51.48 15251.1 33.84 1794770 1644282	
	PROPOSED MAN LINES HOURS CONUS	369687 241784 416792 272591 166336 108787 180588 118109 129925 84974 30362 19857 453 296 81090 53035	
	MAN LABOR DEPOT HOURS RATE COST	287699 22.95 6601339 446343 25.46 1.13427 124290 28.66 3562298 8303 35.05 299990. 8421 43.47 366900. 19857 33.63 667799. 296 51.48 15251.1 4224 35.62 159488.	
ALT NO. FOUR COST PER YEAR FY85 \$	DEPUT CURRENT N LINES HC		РАКАМ А 1.529 РАКАМ В 1.529 РАКАМ С 302 РАКАМ D17392

Supply Depot Operating Costs for Alternative Five for CONUS, Class IX Army Stock (FY 85 \$) TABLE IV-9.

DEPOT	CURRENT	MAN	LABOR RATE	DEPOT	PROPOSED LINES	MAN HOURS	NEW RATE	NEW OPS COST	OPS COST CHANGE	BASELINE LINES	NEW TOT
	CONUS				CONUS						
MCAD	439892	287699	22.95	6601339	369687	241784	23.05	5573017		2726762	7559596
RRAD	682458	446343	25.40	1.134E7	361698	236559	26.48	6262889		1518464	1197764
SHAD	190039	124290	28.66	3562298	166336	108787	28:82	3135237		758967	735264
ANAD	12695	8303	35.05	290990.	180588	118109	31.95	3773208		238754	496647
.BDA	12875	8421	43.47	366000.	129925	84974	36.59	3109393		69250	186300
LEAD	30362	19857	33.63	667799.	30362	19857	33.63	661799		382717	302717
PUDA	453	296	51.48	15251.1	106475	69637	38.84	2704829		26182	132204
FEAD	6429	4224	35.62	35.62 150488.	30162	19727	34.99	690207.	539718.	217356	241059
	111111	1 1 1 1 1	•	1 : 1 : 1 : 1 :	1 1 1 1 1 1 1	1 1 1 1 1 1		1 1 1 1 1 1 1 1		111111111111111111111111111111111111111	1 1 1 1
<b>FOTAL</b>	1375233	899433		2.299E7	1375233	899433		2 592F7	7 2921256	5858452	5858452

PARAM A 1.529
PARAM C 302
PARAM C .17392

Supply Depot Operating Costs for Alternative Six for CONUS, Class IX Army Stock (FY 85 \$) TABLE IV-10.

UEPOT	CURRENT LINES CONUS	MAN	LABOR RATE	DEPOT COST	PROPOSED LINES CONUS	MAN	NEW	NEW OPS COST	OPS COST CHANGE	BASELINE Lines	NEW TOT LINES
	1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1111111	1 1 1 1 1		1	1 1 1 1	1 1 1 1 1
NCAD	439892	287699	22.95	6601339	282118	184511	23.18			2726762	256898
KKAD	682458	446343	25.40	1.134E7	361698	236559	26.48			1518464	119770
SHAD	190639	124290	28.66	3562298	166336	168787	28.82			758967	73526
ANAD	12695	8303	35.05	290990.	180588	118109	31.95			238754	40664
LBDA	12875	8421	43.47	366000.	129925	84974	36.59			69250	18630
LEAD	30362	19857	33.63	667799.	117931	77129	32.18			302717	39028
PODA	453	596	51.48	15251.1	196475	69637	38.84			26182	13220
TEAD	6459	4224	35.62	150488.	30162	19727	34.99	690207.	539718.	217356	24105
	1	ì	•	1 1 3 9 1 1 1 1	1 1 1 1 1 1 1	1 1 1 1 1		1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
TOTAL	1375233	899433		2.299E7	1375233	899433		2.644E7	3441938	5858452	585845

TABLE IV-11. Summary of Depot Operating Costs - FY \$ 85 K

ALT #	ANNUAL OPERATING COST	INCREASED COST RELATIVE TO ALT 1
1	22990	0
1A	23050	60
2	24090	1100
3	24480	1490
4	25230	2240
5	25920	2930
6	26440	3450

TABLE IV-12. Model Validation - First Qtr FY 85  $Y = 302 \text{ X}^{-.1739}$ 

DEPOT	LINES	ANNUAL LINES	PREDICTED RATE	ACTUAL RATE	DIFFERENCE	ABSOLUTE DIFFERENCE
* ANAD	55218	220872	35.52	31.72	3.80	3.80
* LBDA	17706	70824	43.29	42.55	.74	.74
CCAD	100139	400556	32.03	32.02	.01	.01
* LEAD	95973	383892	32.27	30.67	1.60	1.60
SVDA	2332	9328	61.60	53.43	8.17	8.17
* NCAD	635539	2542156	23.23	30.27	-7.04	7.04
* RRAD	362623	1450492	25.61	29.54	-3.93	3.93
SAAD	61947	247788	34.82	29.76	5.06	5.06
SEAD	8023	32092	49.69	64.68	-14.99	14.99
* SHAD	178877	715508	28.96	34.01	-5.05	5.05
SIAD	4368	17472	55.23	65.90	-10.67	10.67
TOAD	57896	231584	35.23	25.47	9.76	9.76
* TEAD	52555	210220	35.83	33.66	2.17	2.17
FWDA	285	1140	88.78	69.00	19.78	19.78
* PUDA	5682	22728	52.76	45.69	7.07	7.07
UMDA	1358	5432	67.67	81.55	-17.88	17.88
	AVG \$/HR % Diff		43.91	43.75	+.16	7.35 16.8%
	* AVG \$/HR % Diff		34.68	34.76	08 2%	3.93 11.3%

<sup>\*</sup> Indicates depot is a candidate for increased stock positioning.

Supply Depot Operating Costs for Alternative One, Assuming AOD Modernization Conditions; TABLE IV-13.

QO <sub>M</sub>	
AOD	
WITH	FY85 \$
ONE	YEAR
ž	COST PER

NEW TOT LINES	2726762	1518464	758967	238754	69250	302717	26182	217356	3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5858452
BASELINE LINES	2726762	1518464	758967	238754	69250	302717	26182	217356	1 1 1 1 1 1	5858452
DPS COST CHANGE	; 69 ; ; ;	5	59	69	9	59	5	9	111111	59
NEW OPS OPS COST COST CHANGE	4352659	7476587	2348837	290990.	366000.	667799.	15251.1	150488.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.567E7
NEW RATE	22.95	25.40	28.66	35.05	43.47	33.63	51.48	35.62	•	
MAN	189697	294301	81952	8303	8421	19857	536	4224	1 1 1 1 1 1 1 1 1 1 1	607051
PROPOSED LINES CONUS	439892	682458	190039	12695	12875	30362	453	6459	1 1 1 1 1 1 1	1375233
DEPOT	22.95 4352659	7476587	2348837	290990.	366000.	. 661799	15251.1	150488.	1 1 1 1 1 1 1 1	1.567E7
LABOR RATE	22.95	25.40	28.66	35.05	43.47	33.63	51.48	35.62		
MAN	189697	294301	81952	8303	8421	19857	296	4224	1 1 1 1 1 1 1 1	687851
CURRENT LINES CONUS	439892	682458	190039	12695	12875	30362	453	6429	1 1 1 1 1	1375233
DEPOT	NCAD	RRAD	SHAD	ANAD	LBDA	LEAD	PUDA	TEAD		TOTAL

PARAM A .65936 PARAM B 1.529 PARAM C 302 PARAM D -.17392 Supply Depot Operating Costs for Alternative One-A, Assuming AOD Modernization Conditions. TABLE IV-14.

ALT NO. ONE-A WITH AOD MOD COST PER YEAR FY85 \$

NEW TOT	7 7 7 0 0 0 0 0	\$0\$6B07	1634868	759861	238754	69250	302717	26182	217356	1 1 1 1 1 1 1 1	5858452
BASELINE Lines	111111111111111111111111111111111111111	79/97/7	1518464	758967	238754	69250	302717	26182	217356	1 1 1 1 1 1	5858452
NEW OPS OPS COST COST CHANGE		-1.14Eb	1163539	10566.5	59	5	59	59	53	1 1 1 1 1 1 1 1 1	1.571E7 37965.1
TEW OPS	0133100	2710213	8640126	2359404	290990	366000.	667799.	15251.1	35.62 150488.	1 1 1 1 1 1	1.571E7
NEW N	1 6	71.57	25.08	28.66	35.05	43.47	33.63	51.48	35.62	•	
MAN	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	139114	344498	82337	8303	8421	19857	296	4224	1 1 1 1	607051
PROPOSED LINES CONUS									6429	1 1 1 1 1 1 1 1	1375233
DEPOT	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4352659	7476587	2348837	290990.	366000.	.661199	15251.1	150488.	1111111	1.567E7
LABOR RATE	;			28.66						•	
MAN	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	189681	294301	81952	8303	8421	19857	296	4224	1 1 5 5 5 5 5	607051
CURRENT LINES CONUS	10000	439892	682458	196639	12695	12875	30362	453	6459	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1375233 607051
DEPOT	1 6 1 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NCAD	RRAD	SHAD	ANAD	LBDA	LEAD	PUDA	TEAD		TOTAL

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 A
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 PARAM
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Supply Depot Operating Costs for Alternative Two, Assuming AOD Modernization Conditions, TABLE IV-15.

ALT NO. TWO WITH AOD MOD COST PER YEAR FY85 \$

NEW TOT	2719389 1281994 758967 482597 69250 302717 26182 217356
BASELINE LINES	2726762 1518464 758967 238754 69259 302717 26182 217356
OPS COST CHANGE	4281720 -70939. 52348837 9 5202827 4911837 366000. 667799. 15251.1 150488. 1.806E7 2396273
NEW OPS OPS COST COST CHANGE	22.96 4281720 26.16 5031961 28.66 2348837 31.01 5202827 43.47 366000. 33.67799. 51.48 15251.1 35.62 150488.
NEW RATE	22.96 22.96 26.16 28.66 31.01 43.47 43.47 33.63
MAN	186518 192326 192326 167782 167782 8421 19857 296 4224
PROPOSED LINES CONUS	432519 445988 196639 256538 12875 36362 453 6459
	4352659 7476587 7476587 5298990. 7366000. 867799. 8 15251.1
LABOR RATE	22.95 4 22.95 4 28.66 2 35.66 2 35.68 2 33.63 6 35.62 1
MAN	189697 294301 81952 81952 8363 8421 19857 296 4224
CURRENT LINES CONUS	439892 682458 196639 12695 12875 36362 453 6459
DEPOT	NCAD RRAD SHAD ANAD LBDA LEAD PUDA TEAD

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Supply Depot Operating Costs for Alternative Three, Assuming AOD Modernization Conditions. TABLE IV-16.

> ALT NO. THREE WITH AOD MOD COST PER YEAR FY85 \$

NEW TOT LINES	2719389	1231966	735264	482597	69250	302717	26182	291987	3 3 1 1 1 1 1	5858452
BASELINE LINES	2726762	1518464	758967	238754	6925	362717	26182	217356	1 1 1 1 1	5858452
NEW OPS OPS COST COST CHANGE	-70939	-2.99E6	-281587	4911837	5	- 53	5	1644282	1 1 1 1 1 1 1 1 1	1.888E7 3215897
NEW OPS COST	4281720	4488891	2067250	5202827	366999	667799.	15251.1	33.84 1794770	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.888E7
NEW RATE	22.96	26.35	28.82	31.01	43.47	33.63	51.48	33.84	•	
MAN HOURS	186518	170364	71730	167782	8421	19857	296	53035	1 1 1 1 1 1 1 1	678002
PROPOSED LINES CONUS	432519	395060	166336	256538	12875	30362	453	81090	1 1 1 1 1	1375233
	•	7476587	2348837	290990.	366000.	.667799	15251.1	150488.	1 1 1 1 1 1	1.567E7
LABOR RATE	22.95	25.40	28.66	35.05	43.47	33.63	51.48	35.62		
MAN	189697	294301	81952	8303	8421	19857	296	4224	1 1 1 1 1 1 1 1 1	607051
CURRENT LINES CONUS	439892	682458	190039	12695	12875	30362	453	6429	1 1 1 1 1 1 1 1 1 1	1375233
DEPOT	NCAD	RRAD	SHAD	ANAD	LBDA	LEAD	PUDA	TEAD		TOTAL

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Supply Depot Onerating Costs for Alternative Four, Assuming AOD Modernization Conditions, TABLE IV-17.

MOD	
AOD M	
WITH	FY85 \$
OUR	YEAR
NO. F	PER
ALT	COST

NEW TOT LINES	7656557	1252798	735264	406647	186300	302717	26182	291987	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5858452
BASELINE LINES	273676	1518464	758967	238754	69250	302717	26182	217356	1 1 1 1 1 1 1 1 1 1	5858452
NEW NEW OPS OPS COST RATE COST CHANGE	23.05.3674624 -678034	26.48 4758505 -2.72E6	28.82 2067250 -281587	31.95 3773208 3482219	36.59 3109393 2743393	33.63 667799. @	38.84 11507.7 -3743.3	34.99 1855608 1705120	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.992E7 4249286
PROPOSED MAN LINES HOURS CONUS	159422	416792 179736	71730	118109	84974	19857	296	53035	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1375233 687159
	22.95 4352659	25.40 7476587	28.66 2348837	35.05 290990.	43.47 366000.	33.63 667799.	51.48 15251.1	35.62 150488.	1 1 1 1 1 1 1 1	1.567E7
CURRENT MAN LINES HOURS CONUS	!	682458 294301							1	1375233 607051
DEPOT	NCAD	RRAD	SHAD	ANAD	LBDA	LEAD	PUDA	TEAD		TOTAL

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Supply Depot Operating Costs for Alternative Five, Assuming AOD Modernization Conditions. TABLE IV-18.

ALT NO. FIVE WITH AOD MOD COST PER YEAR FY85 \$

NEW TOT	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	/669697	1197764	735264	406647	186399	302222	132204	241059	1 1 1 1 1	5858452
BASELINE LINES	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	79/97/7	1518464	758967	238754	05269	392717	26182	217356	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5858452
NEW OPS O	report rearrant se ce	#C00/0- #70#/00 C0*C7	26.48 4129498 -3.35E6	28.82 2067250 -281587	31.95 3773208 3482219	36.59 3149393 2743393	33.63 667799.	38.84 2704829 2689578	34.99 690207. 539718.	111111111111111111111111111111111111111	2.082E7 5148198
	1604031	774CCT	155977	71730	118109	84974	19857	69637	30162 19727	1 1 1 1 1 1	699433
LABOR DEPOT RATE COST	22 95 4352659	100000000000000000000000000000000000000	25.40 7476587	28.66 2348837	35.65 290990.	43.47 366000.	33.63 667799.	51.48 15251.1	35.62 150488.	1 1 1 1 1 1 1 1	1.567E7
	189697		2943@1	81952	8303	8421	19857	296	4224	•	1375233 607051
DEPOT	1								TEAD	•	TOTAL

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Supply Depot Operating Costs for Alternative Six, Assuming AOD Modernization Conditions. TABLE IV-19.

ALT NO. SIX WITH AOD MOD COST PER YEAR FY85 \$

BASELINE LINES	2726762	1518464	758967	238754	6925	717085	26182	217356		5858452
NEW NEW OPS OPS COST RATE COST CHANGE	-1.5366	-3.35E6	-281587	3482219	2743393	1813915	2689578	34.99 690207, 539718.	3 1 1 1 1 1 1	2.178E7 6108088
NEW OPS COST	23.18 2820599	4129498	2067250	3773208	3109393	2481714	2704829	690207	1 1 1 1 1 1 1	2.178E7
NEW RATE	23.18	26.48	28.82	31,95	36.59	32.18	38.84	34.99	•	
MAN	121659	155977	71730	118109	84974	77129	69637	19727	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	718942
PROPOSED LINES CONUS	282118	361698	166336	180588	129925	117931	106475	30162	1 1 1 1 1 1 1	1375233 718942
DEPOT	4352659	7476587	2348837	290990.	366000.	661199.	15251.1	35.62 150488.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.567E7
LABOR RATE	22.95	25.40	28.66	35.05	43.47	33.63	51.48	35.62	•	
MAN	189697	294301	81952	8303	8421	19857	296	4224	1 1 1 1 1 1	607051
CURRENT LINES CONUS	439892	682458	190039	12695	12875	30362	453	6429	1 1 1 1 1 1 1 1	TOTAL 1375233
DEPOT								TEAD	•	TOTAL

2568988 11197704 735264 406647 186300 390286 132204 241059

NEW TOT LINES 5858452

.65936 1.529 302 -.17392

TABLE IV-20. Summary of Depot Operating Costs - FY \$ 85 K Under AOD Mod Considerations.

ALT	ANNUAL	INCREASED COST
#	OPERATING COST	RELATIVE TO ALT 1
1	15670	0
1A	15710	40
2	18060	2390
3	18880	3210
4	19920	4250
5	20820	5150
6	21780	6110

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# Chapter V. RECURRING COSTS

# I. Introduction.

- A. Within the Army, the wholesale supply system is a complex, interrelated system of people, organizations, information, facilities, and material. A small change in one aspect of the system may result in unintended and undesirable side effects or ripple effects in other areas.
- B. Stock positioning decisions and structural changes to the physical distribution system were judged to have potential impact on several organizations within the Army Materiel Command. The purpose of this chapter is to quantify this impact on all affected organizations within AMC above depot level. The recurring impact at depot level is evaluated in Chapter IV.

# II. Methodology.

- A. A questionnaire was designed to elicit cost estimates from each potential organization as shown in Appendix A. This questionnaire was sent, along with a description of the proposed changes described in the Study Plan shown in Appendix D.
  - 1. Potential organizations affected are listed in Table V-1.
  - 2. Each organization was given about two months to respond.
- B. Survey results were not scrutinized, challenged or analyzed because of insufficient time and expertise to do so.

#### III. Results.

A. All organizations responded to the request for data. ALMSA, AVSCOM, CECOM, and LSSA indicated that there would be no recurring effect on their operations. HQ DESCOM responded but their comments indicated that the impact was at the depot level, not at the headquarters. Since this is considered in Chapter IV, DESCOM response was omitted to avoid double counting this cost.

B. A summary of the results is provided in Table V-2.

# IV. Discussion.

- A. Uncertainty. Because of the subjectivity involved in making estimates of this nature and because of the way the questionnaire is structured, these costs are only "guesstimates" with order of magnitude accuracy at best.
- B. Comments. Those NICPs that claimed an impact attributed the increase in cost to:
- 1. TROSCOM Increased paperwork and search review time for interdepot transfers, adjustments, packaging, workload forecasting, changes to operating procedures/programs, budget procurement, and typing.
  - 2. AMCCOM Additional personnel, no reasons provided.
  - 3. MICOM Additional personnel, increased paperwork.
- 4. TACOM Additional personnel for item accounting, ROD processing, and code "L" stock areas.

TABLE V-1. AMC Organizations Surveyed

ACRONYM	ORGANIZATIONS
ALMSA	US AMC Automated Logistics Management Systems Activity
AMCCOM	Armament, Munitions and Chemical Command
AVSCOM	Aviation Systems Command
CECOM	Communications-Electronics Command
DESCOM	Depot Systems Command
LSSA	US AMC Logistic Systems Support Activity
MICOM	Missile Command
TACOM	Tank-Automotive Command
TROSCOM	Troop Support Command

TABLE V-2. Results of Survey. Recurring Costs Above AOD (FY 85 \$ K)

	INCREASE IN RECURRING MANAGEMENT COST (FY 85 \$ K) ORGANIZATION														
ALT #	AMCCOM	AVSCOM	CECOM	MICOM	TACOM	TROSCOM	ALMSA	LSSA	TOTAL						
1															
1A															
2	50			50	50	100			250						
3	50			50	300	150			550						
4	50			50	300	150			550						
5	50			50	300	400	 		800						
6	50			50	300	400			800						

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# Chapter VI. NONRECURRING COST

# I. Introduction.

Change in a large, complex bureaucracy occurs slowly. One of the reasons for slow gradual change is that sudden, major changes usually result in significant one-time application of resources to implement the change. This chapter deals with these one-time, nonrecurring costs throughout the Army Materiel Command associated with positioning stocks in alternative depot configurations.

# II. Methodology.

- A. A questionnaire was designed to elicit cost estimates from each potentially affected organization as shown in Appendix A. This questionnaire was sent along with a description of the proposed changes described in the Study Plan shown in Appendix D.
  - 1. Potentially affected organizations are listed in Table V-1.
  - 2. Each organization was given about two months to respond.
  - B. Survey results were accepted as provided without challenge.

#### III. Results.

All organizations responded to the request for data. AMCCOM, CECOM, MICOM, and LSSA indicated that the changeover could be accomplished within their organization without resource impact. A summary of the results is provided in Table VI-1.

# IV. Discussion.

A. Uncertainty. Because of the subjectivity involved in making estimates of this nature and the way the questionnaire is structured, these costs are "guesstimates" with order of magnitude accuracy, at best.

#### B. Comments.

- 1. The estimates made by HQ DESCOM personnel dominate this cost category. Nonrecurring requirements were indicated for ADP hardware and software, ADP personnel, and facilities. The major need is caused by the additional Standard Depot System modules that would be required for non-AODs to function as an AOD. Non-AODs currently do not run all SDS modules. Each existing non-AOD would require additional disk space and terminals to support the increase in workload as well as additional ADP personnel support for software installation. In addition to ADP costs, each non-AOD would require funds for rewarehousing and other storage space management functions.
- 2. ALMSA Certain files and applications of the Commodity Command Standard System would require software modifications if the distribution network is modified.
- 3. AVSCOM Software changes to bridging and command unique programs would be required. Also, internal system change requests must be developed and internal policies and procedures revised.
  - 4. TACOM Unspecified software changes would be required.
- 5. TROSCOM Additional equipment associated with the workload increase specified in Chapter V, para IVB1.

Table VI-1. Nonrecurring Cost Summary \$ K FY 85

i				ORG	ANIZATI	ON				
ALT #	AMCCOM	AVSCOM	CECOM	TACOM	MICOM	TROSCOM	ALMSA	LSSA	DESCOM	TOTAL
1 1A 2 3 4 5		100 100 100 100 100		50 50 50 50 50		50 50 50 50	100 100 100 100 100		650 1350 1800 2200 3050	900 1650 2100 2500 3350

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# Chapter VII. ORDER-SHIP-TIME

# I. Introduction.

- A. A logical premise is that if stocks are positioned closer to a customer, that customer will receive its requisitions in less time. Since the average order-ship-time runs about 17 days [19] to have the item in-theater for a Priority Group 3 requisition, significant time savings might seem possible. However, of this time, it takes about 8 days to submit the requisition to the NICP. The NICP takes about 2 days to transmit the action to the depot. The depot requires almost 4 days to process the Materiel Release Order (MRO) and then the materiel waits almost 2 days in "Transportation Hold" awaiting shipment. Based on discussions with numerous experts, these portions of the pipeline are considered to be relatively unaffected by stock positioning policies.
- 8. The only major impact on order-ship-time that is customer-to-depot distance related, is the transit time from the moment the materiel leaves the depot until it arrives at the next destination. It is assumed that the other pipeline segments will not be affected by the location of stock. Although MILSTEP reports show some differences between depots concerning the MRO receipt to date available time and transportation hold times, the variability is not great (the sum of these times ranged from 5.0 5.8 days at the AODs for Priority Group 3, immediate issues in Oct 83 [19]). In addition, transportation hold time is primarily driven by customer demand. Very high demand customers will have more frequent dedicated traffic schedules and thus less hold time, regardless of which depot is designated as the primary source.

# II. Methodology.

- A. General Concept. The transportation time from depot to customer will depend primarily on two factors--namely, mode of transportation and distance.
- 1. Mode of Transportation. Four dominant classifications of mode, discussed in Chapter III, are truckload, less-than-truckload, small package, and air. Air shipments are easily the most responsive in terms of time, but are limited to strict "air eligible" criteria because of cost considerations. Small package shipments are also fairly responsive, not because of transportation speed, but because of less "hold time." Truckload shipments usually require "hold time" but because the truck normally goes directly to the customer, the transportation time is fairly low except when the distance is great. Less-than-truckload shipments also require significant hold time and move slower than truckload shipments because of intermediate stops and additional handling along the way.
- 2. Distance. Generally, the greater the distance between source and destination, the longer the transit time, for any mode of transportation.
- 3. Other factors. There are many factors that influence responsiveness of transportation systems. Proximity to urban areas, terrain, climate, accessibility to interstate highways, union rules, season, etc., can influence the transit time. It is assumed that these factors are of minor importance and will affect all alternatives equally.
- B. Approach. For each mode of transportation, a separate analysis yielded a relationship between transit time and distance. These relationships were used to compute the transit time between each depot and customer pair and a weighted average time was computed based on LIF shipments data for CY 84.

#### C. Source of Data.

- 1. Truckload and Less-than-Truckload. The Department of Defense Materiel Distribution Study (DODMDS) [8], performed an intensive analysis of transit times. Based on data taken from the Intransit Data Files from the MILSTEP DOD Central Data Collection Point, approximately 2.3 million records were taken from a twelve month period during FY 75-76. From these records, relationships were generated using regression analysis to quantify transit time as a function of distance for various modes. Since the degree of correlation between transit time and distance was extremely high for these two modes and because speed limits and conditions are viewed to be still comparable, it is assumed that the relationships are still valid today.
- 2. Air. The DODMDS [8] study reported that the correlation between time and distance for air shipments was extremely low. This could be expected because, with air movements, the majority of the elapsed time is consumed on the ground getting the package to and from the airports. The distance between airports can only account for time differences of a few hours rather than the usual measure of days. Therefore, it was assumed that air shipment time is constant and independent of distance between source and destination. The value of 1 day was assumed. The difference between alternatives is not dependent upon the value selected.
- 3. Small Package. The DODMDS [8] study results for small package shipments were not used because of poor correlation ( $R^2$  = .68) and because of changing conditions in the small package transportation industry since the 1975-1976 time frame. Since the LIF data indicated that United Postal Service shipments accounted for 75% of the Army CONUS Class IV small package deliveries, UPS transit time data was obtained from their Federal Sales representative.

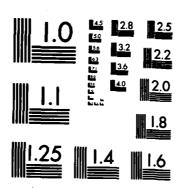
Specifically, for each depot under consideration, a publication entitled "UPS Scheduled Delivery Days from (City)" dated June 1984 was obtained, an example of which is provided in Figure VII-1. From this data, a relationship between a surrogate for distance (Ground Service Zone) and transit time was developed. UPS Ground Service Zones are based on the first three digits of ZIP codes and are published by UPS in a publication called "UPS Ground Service Zone Chart," an example of which may be seen in Table III-5. It is assumed that the transit time for UPS is valid for the remaining 25% of the small package shipments (Parcel Post and Surface Small Package Carriers).

- D. Analysis.
- 1. Relationships. To estimate the transit time between each depotcustomer pair, the relationships provided in Table VII-2 were used. For truckload
  and less-than-truckload modes the intercept of the linear relationship
  approximately represents the hold time. The reciprocal of the slope represents
  the number of miles/day in transit. A truckload shipment will move 495 miles
  per day versus 370 miles per day for less-than-truckload shipments. Table VII-1
  provides backup information for the development of the UPS relationship. In
  no case was the UPS relationship in error of more than one day and it is approximately equally likely to overestimate as to underestimate.
- 2. Using the relationships in Table VII-2 and the LIF data, a weighted average time was calculated using the following formula:

Transportation
$$Time_{j} = \frac{\sum \sum_{k} \sum_{j \in I} T_{jkl} \cdot L_{ijkl}}{\sum_{j \in I} \sum_{k} \sum_{l \in I} L_{ijkl}}$$

where

WHOLESALE STOCK POSITIONING AND DISTRIBUTION POLICIES
PHASE I VOLUME 2 METHODOLOGY(U) LOGISTICS STUDIES
OFFICE (ARMY) FORT LEE VA P E GROVER AUG 85 AD-A162 916 2/3 UNCLASSIFIED F/G 15/5 NL



MICROCOPY RESOLUTION TEST CHART NATIONAL BUREAU OF STANDARDS-1963-A

 $T_{jk}$ ] = Transit time for mode j from depot k to destination 1

k = depot index k = 1,2...8

# III. Results.

A. Using a VISICALC model to execute the formula in para IID2 above, the results for each alternative and mode are provided in Appendix F. These runs are summarized in Table VII-3.

#### B. Discussion.

- 1. By not including hold time in the calculation for air and small package shipments, the weighted average transportation time values provided in Appendix F are hard to interpret. However, the differential time between an alternative and the current alternative is a meaningful measure of time savings. Adding hold time to small package and air shipments or subtracting hold time from truck and less-than-truck, will not change the differential time.
- 2. Increasing the number of stock positioning points will increase responsiveness to requisitions, but only marginally. At most, a third of a day improvement is forecast by increasing the number of positioning points from 3 to 8. The reasons for this rather low decrease in response time are:
- a. Major segments of the pipeline are not affected by where the stock is positioned.
- b. Increasing stock positioning points will probably not reduce out-of-area shipments. Out-of-area shipments tend to heavily influence the

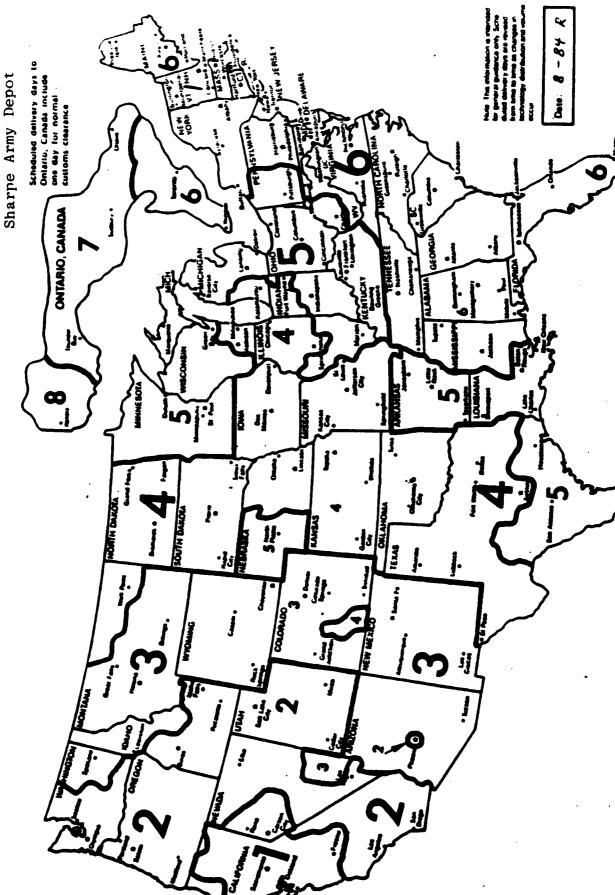
average transit time (see Alternative 1A in Table VII-3). The model replicates this effect equally for all alternatives except 1A.

- c. Major concentrations of demand are already close to the existing 3 AODs. Forts Hood, Lewis, Irwin, Ord, Polk, Meade, Bliss, Sill, Bragg, and Corpus Christi Army Depot would experience no real change in their response time because of their locations relative to NCAD, RRAD, and SHAD. These 10 locations account for 36% of the CONUS demand. Also, there are many smaller installations that remain closest to the existing three AODs in all cases.
- d. Some major installations would notice an improved response time. These include Forts Campbell, Carson, Benning, Stewart, Knox, Rucker, and Anniston Army Depot. However, these installations only account for 23% of CONUS demand. The significant improvement for these customers is weighted down in computing a weighted average by the greater number of installations that experience little or no change.
- 3. If quicker response to requisitions is a driving force for stock positioning decisions, there is greater potential for time reduction associated with improving stock positioning pricies within the existing network, Alternative 1A, than by expanding the network. Since the items in the scope of this study had a distribution effectiveness in CY 84 of 78% by lines and 74% by weight, considerable time savings (not to mention cost savings) could be achieved by improving distribution effectiveness. Further study can address specific policy changes that may achieve this desirable objective.

Ups United Parcel Service

# Scheduled delivery days from

SACRAMENTO, CA



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Figure VII-1

TABLE VII-1. Analysis of UPS Transit Time (Days) as a Function of UPS Zone

	ABS DIFF	0	0	<b>-</b>	0	0	0	0	0	0	0	0	_	_	_	. –	· c	· c	-	• =	<b>,</b>	•	> <	• =	- •		•	0	0	0	0	0		•	0	0		۰.		• 0	0	_	0	0	-	>
	ACTUAL MINUS PRED	0	0	0	0	0	0	0	0	0	0	0	7	7	7	· -		-	• -	• =	<b>&gt;</b> <	<b>&gt;</b>	> <	· c	7	. c	· c	0	0	0	0	0		•	0	0	<b></b> (	٥.	77	۔ د	0	7	0	0	0	>
	MINUS NEW NEW NEW NEW NEW NEW NEW NEW NEW NEW	9	9	•	9	9	9	ဖ	9	9	9	9	•	•	ve	ۍ د	-			, v	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	ۍ د	9	9	•	9	9	•	Φ		٠	9	9	S.	•	<b>o</b>		S	S	₹	•	₹ .	7
	ACTUAL TRANSIT M TIME	9	•	•	•	•	9	•	9	9	9	9	G	· K	un	4	ۍ.		4	٠ ٧	<b>.</b>	<b>.</b>	יי כ	<b>.</b>	•	· va	9	•	9	9	•	•		•	•	•	9	<b>ب</b> ص	n <b>~</b>	•	'n	~	4	₹,	•	~
	UPS ZONE TR	∞	<b>œ</b>	∞ •	∞ •	<b>æ</b>	<b></b>	œ	<b>~</b>	<b>∞</b>	∞	00	œ	00	α	-	. ~	. ~	. ~	- œ	ο α	a	o ~	. ec	~	. ec	<b>a</b> 0	00	<b>&amp;</b>	<b>œ</b>	œ ·	80		•	<b>∞</b>	<b>œ</b>	~	50 C	۰ ۰	. ~	_	7	9	<b>•</b>	Φ.	n
	SHAD	75	8	081	144	456	661	250	8	216	166	163	187	121	214	5	158	<u> </u>	2 =	1726	210	17.7	25.4	1	163	132	214	159	114	115	288	808	8197	224	529	<b>528</b>	£	= \$	200	114	159	260	368	160	2 :	25.1
ABS	DIFF	-	0	0	0	0	0	0	-	0	0	0	0	0	-		-	•	• =	•	· c	<b>,</b>	<b>-</b>	, –		-	0	-	0	0	0	0		0	0	0	(	٥.		-		-	-	0	0	>
ACTUAL	MINUS	7	0	0	0	0	0	0	7	0	0	0	0	0	•	. c	· c	· c	-	• =	•	•	<b>-</b>	•	٠,	7	0	7	<b>o</b>	0	0	•		0	0	0	(	> -	-		-		-	0	<b>-</b>	>
	MINUS	S	∢ .	4	₹	₹	♥	₹	₹	~	۳	m	~	· ~	~	۰ م	~ ،	, ~	۰ ۸	~ ر	7	7	~	4		₹	4	4	m	~	❤ '	4		m	8	~	⊶ (	7,	า ~	• 0	_	-	-	~	<b>~</b> (	7
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TABLE VII-2. Time Estimating Relationships - Time in Days

Mode	Equation	R <sup>2</sup>	Source	Comment	
Truckload	T1k1 = 3.43 + .0020Zdk1	.81	DODMDS	Includes Hold Time	
Lt Truckload	$T_{2k1} = 5.34 + .0027d_{k1}$	.94	DODMDS	Includes Hold Time	
Small Package	$T_{3k1} = UPS Zone_{k1} - 2$	High	UPS	Transit Time Only	
Air	T <sub>4k1</sub> = Constant	Low	Assumption	Transit Time = 1 day	

 $T_{jkl}$  = Transportation time (days) for mode j, from depot k to destination 1.

 $d_{k1}$  = Distance between depot k and destination 1 in miles.

UPS Zonek1 = UPS ground service zone number from depot k to destination 1.

TABLE VII-3. Reduction in Transit Time Relative to Alternative 1 (Days)

ľ	MODE				
ALT	TRUCK LOAD	LESS Than Truck Load	SMALL PACKAGE	AIR	LINE WTD AVG
1	-	-	-	-	-
1A	.17	.87	1.65	0	.52
2	.13	.17	.19	0	.13
3	.25	.21	.24	0	.22
4	.30	.28	.34	0	.28
5	.38	.30	.37	0	.33
6	.38	.30	.37	0	.33
Lines	735249	96280	266007	125950	122348

#### REFERENCES

- 1. Perry, Virginia W., and Berkely, Robert M., <u>Modern Concepts of Stock Positioning Phase II Report</u>, April 1973, Logistics Studies Uffice.
- 2. Yaekel, Dale C., et al, Wholesale Interservice Depot Support (WIDS) Study, July 1982, Defense Logistics Analysis Office.
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- 4. Letter, DRCSM-PST, 18 May 1984, subject: Positioning and Distribution of Wholesale Materiel (DODI 4140.7)
- 5. Memorandum for Assistant Secretary of Defense (Manpower, Installations and Logistics) by Office of Assistant Secretary, Department of the Air Force, subject: Positioning and Distribution of Wholesale Materiel (Your DOD Directives System Coordination and Control Record SD Form 106 March 21, 1984) Action Memorandum, dtd 10 May 1984.
- 6. Letter, Commander, Naval Supply Systems Command, 15 November 1982, subject: Wholesale Interservice Depot Support (WIDS) Study.
- 7. Letter, AMCSM-PST (20 Nov 84) 1st Ind, subject: Wholesale Stock Positioning and Distribution Policies, 14 Jan 85.
- 8. Ruth, Stephen R., CAPT, USN, et al, <u>Department of Defense Materiel Distribution System Study</u>, 1 July 1978, Joint Logistics Commanders.
- 9. USA DARCOM LCA Pam 725-1, How to Make Inquiry to the Logistics Intelligence File, November 1980, US Army Logistics Control Activity.
- 10. Khan, Mohammed et al, <u>Economic Analysis for Western Distribution Center</u>, 10 October 1983, Austin Company.
- 11. DLAM 4145.10, <u>DLA Materiel Distribution System Manual</u>, August 1978, Defense Logistics Agency.
- 12. Report, Department of the Army Procurement Statistics Fiscal Year 1984, FY 84, HQDA Procurement Services Division, Headquarters Services-Washington.
- 13. Letter, AMSTA-IP, 9 May 1985, subject: First Destination Transportation Cost Study, Procurement Analysis and Compliance Division, Tank-Automotive Command.
- 14. Knoche, Christine, et al, <u>Second Destination Transportation (SDT)</u>, November 1979, US Army Materiel Systems Analysis Activity.
- 15. RCS AMCSM-305, Depot Operations Cost Evaluation of Receiving and Shipping, Fourth Quarter FY 84, Cumulative Year to Date, FY 84.

- 16. Letter, MT-INFQ, 28 March 1985, subject: Data Call for LSO Project 053, Military Traffic Management Command, Directorate of Inland Traffic, Freight Traffic Division.
- 17. Samuelson, Paul A., Economics, McGraw-Hill, 1980, Eleventh Edition.
- 18. Tisdell, C. A., <u>Microeconomics: The Theory of Economic Allocation</u>, John wiley & Sons, 1972.
- 19. Military Supply Transportation Evaluation Procedure (MILSTEP), Format 1A, Diagnostic Parts II & III, 31 October 1983.
- 20. Distribution Effectiveness Report, DRXLS Form 155, Third Quarter FY 84.
- 21. Letter, AMCRM-ER, 18 January 1985, subject: Inflation Guidance.

# APPENDIX A

# REQUESTS FOR DATA

Data Source/Description	
Logistics Control Activity/Logistics Intelligence File	94
Military Traffic Management Command/Freight Information System	100
First Destination Transportation Cost Questionnaire	102
Recurring and Nonrecurring Cost Questionnaire	109

#### DATA CALL FOR LSO 053

General Description: Summary printout of CONUS demand by extracting requisition data from the LIF.

# Exclude the following transactions:

- 1. OCONUS
- 2. Non-Class IX requisitions
- 3. Items managed by services other than Army
- 4. Requisitions that are cancelled or rejected
- Non-stocked NSNs (DSS shipments only)
- Requisitions that
  - a. Have no NSN
  - b. Have NSNs with FSC
    - (1) 1100 series
    - (2) 1670 and 1680 series
    - (3) 5420 series
    - (4) 6350 series
    - (5) 1300 series and managed by AMCCOM or MICOM
    - (6) 8100 series and managed by AMCCOM or MICOM

Time Frame: Minimum 1 year. Specify in submission the exact time period over which data is accumulated. It is desired that time period be as recent and as long as possible consistent with data quality.

#### Data Elements:

1. Geographical Codes - For all requisitions consigned to CONUS installations, use FORSCOM, TRADOC, and MISC codes ref 1a, page IX-4 (less 94-96) and page IX-5. For requisitions to National Guard and other consignees, accumulate data by state codes (less 02 and 15) contained in LCA Pam 725-1, Nov 1980, page IX-3. Do not overlap codes; i.e., count a requisition going to Fort Carson as a Colorado requisition.

- 2. Requisitions Count of all requisitions in LIF after excluding per above. Accumulate by geographic code.
- 3. Weight Multiply requisition quantity by the unit of issue weight and accumulate by geographic code.
- 4. Cube Multiply requisition quantity by the unit of issue cube and accumulate by geographic code.
- 5. Dollar value Multiply requisition quantity by the unit of issue price and accumulate by geographic code.

# **Example of Printout:**

Geographical (	Code	Description	Number of Requisitions	Weight	Cube	Dollar Value
Installations	12	Ft Belvoir	••			
	13	Ft Benning	· <b></b>			
	:				•	
	:					
	ZX	Corpus Christi			w *=	
States	01	Alabama	••			
	03	Arizona	••			
	:					
	:					
	56	Wyoming			***	
Total						~~

### DATA CALL FOR LSO 053

General Description: Detailed printout of the CONUS flow (# of transactions) of Class IX stocks from depots to second destination.

Exclude: Same as Encl 1.

Time Frame: Same as Encl 1.

### Data Elements:

- 1. Depot Code For each Army supply depot provide a breakout of requisition data by customer geographical code. For depot code use the codes in LCA Pam 725-1, Nov 1980, page X-2. For requisitions supplied from other sources such as direct delivery from manufacturer, accumulate data under code "other."
  - 2. Customer Geographic Codes Same as Encl 1.
  - 3. Weight Same as Encl 1.
  - 4. Cube Same as Encl 1.
- 5. Mode Count the <u>number of requisitions</u> that are transported via the various modes of transportation shown in LCA Pam 725-1, Nov 1980, page X-5. Provide as many modes that can be printed on standard output in the following sequence and priority A,B,5,Q,I,R,G,K,T. The last column shall be "other" to accumulate data not captured in previous columns.

### Example of Printout:

		MODE	ł	!							•			i	1
		•													
		MODE 5	9	1										1	;
		MODE	;	;										;	:
		MODE	ì	;										;	;
		CUBE	;	1										:	:
		WEIGHT	:	;										i	;
	Depot	NO. OF REQNS	ł	1										1	;
	0	DESCR	Belvoir	Benning										Myoming	
DEPOT CODE		GEOGRAPHICAL CODE	12	13	•	• (	• •	<b>X</b> 97	01	03	• •	• •	•	52	TOTAL

 $t_{U}$ 

N.

### DATA CALL FOR LSO 053

General Description: Detailed printout of the CONUS flow (weight) of Class IX

stocks from depots to second destination.

Exclude: Same as Encl 2.

Time Frame: Same as Encl 2.

### Data Elements:

1. Same as Encl 2.

- 2. Same as Encl 2.
- 3. Same as Encl 2.
- 4. Same as Encl 2.
- 5. Mode Accumulate the <u>weight</u> that is transported via the various modes of transportation specified in Encl 2.

### DATA CALL FOR LSO PROJECT 053

General Description: Magnetic tape(s) with raw data supporting Enclosures 1-3

plus additional data that may be needed in the future.

Exclusions: Same as Encl 1.

Time Frame: Same as Encl 1.

Data Elements: For each requisition -

- 1. NSN
- 2. Document Number
- 3. Supplementary Address
- 4. Quantity
- 5. Unit Weight
- 6. Unit Cube
- 7. Unit Price
- 8. Depot Code
- 9. Geographic Code of Consignee
- 10. DODACC of Consignee
- 11. Mode of Shipment Code
- 12. Source of Supply Code

### Tape Specifications:

- 1. 9 Track 1600 BPI
- 2. Standard IBM Labels
- 3. EBCDIC Preferred
- 4. Request all parameters needed to read tape be provided along with a copy of the program used to write the tape.
  - 5. Hard copy printout of first 100 records.



# DEPARTMENT OF THE ARMY U.S. ARMY MATERIEL SYSTEMS ANALYSIS ACTIVITY LOGISTICS STUDIES OFFICE FORT LEE, VIRGINIA 23801

REPLY TO ATTENTION OF

AMXSY-LLSO

25 February 1985

SUBJECT: Data Call for LSO Project 053

Military Traffic Management Command

ATTN: MT-INFQ

Washington, DC 20315

### 1. References:

- a. Meeting, 19 Feb 85, Mr. Lamm, MTMC, and Mr. Grover, LSO.
- b. AR 55-355.
- 2. Request two special inquiries be made to your financial system to capture GBL charges made from Jan 84-Dec 84 with data elements shown in the sample inquiry provided as Enclosure 1.
- 3. Request the format of the reports be modified as shown on Enclosure 2.
- 4. Since LSO Project 053 is concerned with transportation of Class IX items only, limit commodity group (CG) codes to S, 9, P, E, 3, I, D, 4, and X.
- 5. Printout A: Limit inquiry to the following origins and destinations:
  - a. Origins GBLOC codes

**FGAQ** Anniston Army Depot LEAQ Sharpe Army Depot KIAO Pueblo Army Depot Activity Lexington-Blue Grass Depot Activity FAA0 Letterkenny Army Depot DMAQ New Cumberland Army Depot DNAQ Red River Army Depot **HBAQ KBAQ** Tooele Army Depot Tooele Army Depot. South Area **KCAQ** 

b. Destinations - GBLOC codes

All codes beginning with F, K, H, L, A, B, C, J, G, E, D, and IOOI. Exclude codes beginning with M and N.

AMXSY-LLSO SUBJECT: Data Call for LSO Project 053 25 February 1985

- 6. Printout B: Provide a similar printout as para 5 with the following origins and destinations.
- a. Origins same as para 5b. All codes beginning with F, K, H, L, A, B, C, J, G, E, D, and IOOI.
- b. Destinations same as para 5a. FGAQ, LEAQ, KIAQ, FAAQ, DMAQ, DNAQ, HBAQ, KCAQ.
- 7. Requested delivery date of a hard copy printout is 15 March 1985. Point of contact for this action is Mr. Paul Grover, AV 687-3269.
- 8. AMSAA Providing Leaders the Decisive Edge.

FOR THE DIRECTOR:

(signed)

2 Encl

Personal Editional Anadresi consists and analysis and analysis

ROBERT J. BELL LTC, ADA Acting Manager Logistics Studies Office

CF: AMCSM-PST (Toner) w/o encl

### PART I

- 1. <u>Background</u>: The Logistics Studies Office is performing an analysis of the Army <u>Materiel</u> Command distribution system. The object of the study is to determine the effect of expanded stock positioning within the existing Army depot system. The study will focus on the cost/savings of positioning stock closer to the customer by expanding the number of supply locations from the current three to some higher number.
- 2. Purpose: This part of the questionnaire is intended to identify recurring and nonrecurring costs which would be incurred within your agency should a decision be made to expand the number of supply locations. Separate question-naires are being distributed to ALMSA, LSSA, each MSC, and DESCOM. Therefore, the questionnaire is intended to identify only those costs which would be incurred by your activity. For example, changing the number of supply locations may result in a need to modify a bridging program to the CCSS. Or perhaps, changing the number of supply locations increases or decreases the item manager's workload.
- 3. <u>Instructions</u>: The questions involving dollar values require answers in Fiscal Year 1985 dollars. Respondents are requested to record their responses by marking the appropriate answer block. <u>If the first or last block of Questions 3-7 is checked, provide the estimated cost difference in para e. For this questionnaire the following definitions will apply:</u>
- a. Nonrecurring costs one time costs associated with a specific action or alternative.
- b. Recurring costs Annual costs associated with a specific action or alternative.
- c. Hardware costs The materiel costs associated with the acquisition or modification of machines and equipment.
- d. Software costs The materiel costs associated with the production of computer programs, tech manuals, and other procedural or policy publications.
- e. Personnel costs Human resource costs associated with overtime, base pay, benefits, travel, hiring of new personnel, and the use of contract labor.
- f. Facility costs Costs associated with the acquisition, expansion, or modification of real property.

# QUESTIONNAIRE

1.	A cl	hange in the num	mber of AODs	would have	e:			
	a.	No cost impact						
	b.	Some cost impac	:t		[checl	c one]		
	c.	A significant o	cost impact					
2.	The	following categ	gories of our	costs wi	ll be affect	ted by an	increase	in AODs:
	a.	Hardware	Yes	N	o [checl	cone]		
	b.	Software	Yes	N	o [checl	cone]		
	c.	Personnel	Yes	]] N	o [checl	c one]		
	d.	Facilities	Yes	N	o [checl	cone]		
3.	An ·	increase in AODs	by 1 each f	rom 3 eac	h to 4 each	would cha	ange our	costs by:
	a.	Hardware				Increase	Cost	
			Reduce Cost	None	\$ 0-99,999	\$ 100,000- 499,999	\$	\$1M or More
		Nonrecurring						
		- Recurring		<u>                                     </u>				
	b.	Software						
		Nonrecurring		-			<u> </u>	
		Recurring						
	c.	Personnel						
		Nonrecurring		<u>  </u>				
		Recurring	11					
	d.	Facilities						
		Nonrecurring	.					
		Recurring						
	e.	Comments:						

a.	Hardware	Daduas			Increase	Cost	- Partir
		Reduce Cost	None	\$ 0-99,999	100,000- 499,999	500,000- 999,999	\$1M or More
	Nonrecurring						
	Recurring						
b.	Software						
	Nonrecurring						
	Recurring						
c.	Personnel						
	Nonrecurring						
	Recurring		11				
d.	Facilities		•				
	Nonrecurring						<u> </u>
	Recurring						1
e.	Comments:	•					

An	increase in AODs by	3 each	from 3 each	to 6 each	would ch	ange our	costs by
a.	Hardware				Increase	Cost	
		Reduce Cost	None	0-99,999	\$	\$ 500,000- 999,999	\$1M or More
	Nonrecurring						<u> </u>
	Recurring						
b.	Software						
	Nonrecurring						
	Recurring						
c.	Personnel						
	Nonrecurring			<u>  </u> .			
	Recurring						
d.	Facilities						
	Nonrecurring					<u> </u>	
	Recurring						<u> </u>
e.	Comments:						

5.

	Hardware				Increase	Cost	
		Reduce Cost	None	\$ 0-99,999	\$ 100,000- 499,999	\$ 500,000- 999,999	\$1M or More
	Nonrecurring						
	Recurring						
b.	Software	•					
	Nonrecurring						
	Recurring						
c.	Personnel						
	Nonrecurring	<u>  </u>					
	Recurring			<u>  </u>	1_1		
d.	Facilities		-				
	Nonrecurring						
	Recurring						
e.	Comments:						

7.	An	increase in AODs by	5 each	from 3 each	n to 8 each	would cha	ange our	costs by:
	a.	Hardware				Increase	Cost	
			Reduce Cost	<u>None</u>	\$ 0-99,999	\$ 100,000- 499,999	\$ 500,000- 999,999	\$1M or More
		Nonrecurring			<u>  </u>			
		Recurring						<u>  </u>
	b.	Software					•	
		Nonrecurring						
		Recurring						
	c.	Personnel Personnel						
		Nonrecurring						
		Recurring						
	d.	F <u>a</u> cilities		·		· .		
		Nonrecurring		<u> </u>				
		Recurring						
	e.	Comments:						
8.	The	leadtimes to compl	ete our	actions inv	olved with	an expans	sion of A	ODs are
as.	fol 1	ows:						25 mos or
				0-6 mos	7-12 mos	12-24	mos	more
	a.	Expansion to 4 AOD	S			I		
	b.	Expansion to 5 AOD	S		11		_1	
	c.	Expansion to 6 AOD	S					
	d.	Expansion to 7 AOD	S					
	e.	Expansion to 8 AOD	S				<u> </u>	

9.	The	pacing	or	limi	ting	resource	in	commpleting	the	necessary	actions	
soo	ner 1	s:										
	a.	Hardwar	е :	avail	abil	ity						
	b.	Softwar	.е	ava i 1	abil	ity ,		_1	Cche	eck one]		
	c.	Personn	el	avat	1abi	lity	1_	<u>_</u> 1	Lene	eck one]		
	d.	Facilit	y	avail	abil	ity	_					
		NAME				GRADE		TII	<u>LE</u>		AUTOVON	NUMBER

### MSC QUESTIONNAIRE

### PART II

- 1. <u>Background</u>. The Logistics Studies Office is conducting a study of the Army Materiel Command distribution system. Specifically, this office is investigating the impact of expanded stock positioning from the current three Area Oriented Depots (AODs) to up to eight stock positioning points.
- 2. <u>Purpose</u>. The purpose of this part of the questionnaire is to quantify the impact of expanded stock positioning on first destination transportation (FDT) cost. Since this cost is "hidden" into the unit price, request the MSC, Traffic Management, estimate transportation costs from the manufacturer to the various supply depots for certain items.

### 3. Instructions.

- a. General. All costs provided should be at current (FY 85) prices. The costing methodology should be sensitive to distance shipped, the size (weight or volume) of the shipment, mode of shipment, and regional rates. Any assumptions made should be explicitly stated. Maintain a backup file containing data and calculations.
- b. Sample selection. Select five items that your command manages and identify one representative procurement for each item using the following criteria (Five blank copies of the questionnaire are attached. See Encl 1 to Encl 2.)
- (1) The item must be a Class IX item and should be "representative" of the items managed by your command, from a transportation viewpoint.
- (2) The source (contractor) should be located in a typical or representative place for the type of secondary items managed by your command.
- (3) Destination must be New Cumberland Army Depot, Red River Army Depot, and Sharpe Army Depot only. Exclude any procurement for which some quantity is shipped elsewhere. Also exclude any procurement which is destined to only one or two of these identified depots.
- c. Costing methodology. Maximum flexibility is allowed, consistent with the ability to provide data in the format shown. The use of gross factors and across-the-board rates such as \$ x /ton/mile or \$ y /ton or Z% of unit cost is prohibited. Rather it is desired that individualized rates be obtained from transporters that serve the contractor. Use Table 1 to determine the quantities shipped for questions 3 through 8. Mode of transportation should be specified such as truckload, less-than-truckload, UPS, Parcel Post, air freight, etc.

TABLE 1

QUESTION #				QUANTI	TY SHIP	PED TO			
	NCAD	RRAD	SHAD	ANAD	TEAD	LBDA	PUDA	LEAD	TOTAL
3	A	B	<u>  C  </u>	X	х	X	X	X	A+B+C
4	.992A	.747B	С	.008A+ .253B	X	Х	Х	X	A+B+C
5	.992A	.648B	.944C	.008A+	.099B+ .056C	X	X	X	A+B+C
6	.954A	.648B	.944C	.008A+ .178B	.099B+ .056C	.038A+ .075B	X	X	A+B+C
7	.954A	.6488	.944C	.008A+	.056C	.038A+ .075B	.099B	X	A+B+C
8	.890A	.6488	.944C-	.008A+	.056C	.038A+ .075B	.099B	.064A	A+B+C

A - Data

NCAD - New Cumberland RRAD - Red River

B - Data

SHAD - Sharpe

ANAD - Anniston TEAD - Tooele

C - Data

LBDA - Lexington Bluegrass

PUDA - Pueblo

LEAD - Letterkenny

EXAMPLE: A procurement of 1000 widgets. For question 4, the quantity shipped to Anniston (ANAD) is  $.008 \times 500 + .253 \times 300 = 79.9 = 80$ 

QUESTION #				OUANTI	TY SHIP	PED TO			
	NCAD	RRAD	SHAD	ANAD	TEAD	LBDA	PUDA	LEAD	TOTAL
3	500	300	200	X	X	X	X	x	1000
4	496	224	200	80	Х	X	X	х	1000
5	496	194	189	80	41	X	X	х	1000
6	477	194	189	57	41	42	X	X	1000
7	477	194	189	57	11	42	30	x	1000
8	445	194	189	57	11	42	30	32	1000

# MSC QUESTIONNAIRE

# PART II

1.	MSC	- <del></del>		
2.	NSN data a. NSN #		<del></del> ,	
	b. Nomenclature			
	c. Unit of Issue			
	d. Unit Price			
	e. Unit Weight	1		
	f. Unit Cube			
	g. Contract # (P	IIN/CLIN)		
	h. Contractor Na	me		
	i. Contractor Lo	cation City		State
	j. Contract Valu	e (FY 85 \$)	· · · · · · · · · · · · · · · · · · ·	
3.	First Destination	Transportation	n Cost for three suppl	ly points.
	Depot 0	ty Shipped	Mode of Transportation	FDT Cost
	NCAD			
	RRAD			
	SHAD			
	TOTAL į			

4.	First Destin	ation Transportatio	n Cost for four supply	points.
	Depot NCAD RRAD SHAD ANAD	Qty Shipped	Mode of Transportation	FDT Cost
	TOTAL			II
_				
5.	First Destin	ation Transportatio	n Cost for five supply	points.
5.	First Destin	ation Transportatio  Oty Shipped	n Cost for five supply  Mode of  Transportation	FDT Cost
5.			Mode of	
5.	<u>Depot</u>		Mode of	
5.	<u>Depot</u> NCAD		Mode of	
5.	<u>Depot</u> NCAD RRAD		Mode of	
5.	Depot NCAD RRAD SHAD		Mode of	

. First Destin	ation iransportatio	n cost for six supply	points.
Depot	Qty Shipped	Mode of Transportation	FDT Cost
NCAD			
RRAD			
SHAD			
ANAD			
TEAD			
LBDA			
TOTAL			
. First Destin	ation Transportatio	n Cost for seven supp	ly points.
Depot	Oty Shipped	Mode of Transportation	FDT Cost
NGAD			
RRAD			
SHAD			
ANAD			
TEAP			
LBDA			
PUDA			
TOTAL	1 <del></del>		

8. First Destination Transportation Cost for eight supply points.

Depot	Oty Shipped	Mode of Transportation	FDT Cost
NCAD	11		
RRAD			
SHAD			
ANAD			
TEAD			
LBDA			
PUDA			
LEAD			
			<del></del>
TOTAL			

9. Briefly describe the methodology used to estimate FDT cost. Include data sources, assumptions made, and sample calculations.

# APPENDIX B

LOGISTICS INTELLIGENCE FILE ANALYSIS

### Introduction

This appendix provides a descriptive analysis of data provided by the Logistics Control Activity, Presidio of San Francisco, taken from the CY 84 Logistics Intelligence File (LIF) and the Army Master Data File. A copy of the request for data and specifications is provided in Appendix A. This data source is the foundation of this study. Study findings are valid and credible only if the LIF data is likewise. Therefore, the purpose of this appendix is to describe in detail this primary data source. This will enable the reviewer to critically judge the quality and completeness of this important part of the overall study. In addition, the data presented will educate the reader about the CONUS distribution of Class IX items in the Army, providing insights that may not be available from other reports.

### Demand Distribution

The distribution of demand is the critical issue in stock positioning.

Table B-L shows the distribution of shipments during CY 84 to Army CONUS customers for Class IX items. It is apparent from this table that a few large Army installations account for the predominance of demand. Table B-2 lists the top twenty demand areas in decreasing rank. Figure B-1 portrays the geographical distribution of shipments. The "Logistics Crescent" concept reported in the WIDS Study [2] appears to be valid for the Army. Army demand is concentrated in a crescent of locations running along the western, southern, and eastern borders of the US.

## Sources of Supply (Depots)

The existing AODs are the primary source of Class IX items distributed within CONUS. Table B-3 provides data on lines, weight, cube, and dollar value of items shipped from Army depots. RRAD is the leading supplier for CONUS customers, followed generally by NCAD and SHAD.

### Commodity Groupings

Items managed by the Tank Automotive Command (TACOM) were by far the dominant commodity group, accounting for 48.5% of the lines shipped and 89.5% of the total weight shipped. Table B-4 summarizes the distribution of items by commodity group.

### Transportation Modes

For shipments from an AOD (91% of all lines shipped), the mode of transportation was analyzed. Truckload shipments, the most economical mode, predominated. Air and small package lines shipped, although significant in numbers of lines, did not account for significant tonnage because the average weight per line shipped was very small. Table B-5 summarizes the distribution of shipment modes from the three AODs to known identifiable destinations.

Out-of-Area Shipments

# An out-of-area shipment is defined for purposes of this study as any shipment that crosses the geographical boundaries established in Appendix C-1. There are many reasons for out-of-area shipments, but the more common reasons are that the responsible AOD is out-of-stock or has insufficient stock to satisfy the entire requisition. HQ DESCOM and HQ AMC closely monitor a statistic called "distribution effectiveness," the percentage of lines shipped within the AODs assigned area. A goal of 85% distribution effectiveness has been established and that goal is generally met as reported in the MILSTEP-based Distribution Effectiveness Report [20]. However, before the statistic is calculated, 11 exclusions are made to reduce the population to which the 85% goal applies. In reality, total distribution effectiveness is lower than 85% because these exclusions generally apply to lines which tend to have low distribution effective-

ness. For example, in the 3d quarter of FY 84, the distribution effectiveness

reported 86.2% but total effectiveness disregarding exclusions could be as low as 76.1%.

The distribution effectiveness of the CY 84 LIF data base was computed to be 78% by line count and 73.5% by weight. Conversely 22% of the LIF lines and 26.5% of the LIF weight was "out-of-area." Further scrutiny of the out-of-area shipments lead to the following observations:

- Out-of-area shipments tend to be accomplished by less economical modes of transportation (see Table B-6).
- NCAD was the source of most out-of-area shipments. More than half of all such shipments came from NCAD into RRAD's area (see Table B-7).
- Distribution effectiveness is not equally balanced between the AODs.

  The LIF distribution effectiveness for CY 84 for NCAD was  $61\%^1$ ; RRAD 93%; SHAD 74%.

### Known Problems with LIF Data

Weight, cube, and unit price data supplied by LCA came from the notoriously suspect Army Master Data File. Since unit prices were not used to a great degree in this analysis, price inaccuracies are not critical. However, since all of the Second Destination Transportation (SDT) cost estimates are based in part on weight data, unit weights are important. Unfortunately, many NSNs in the AMDF do not have cataloged weight and cube data. Review of the tapes supplied revealed that 2.9% of the lines, particularly for newer NSNs, had zero weight and zero cube. Assuming that these NSNs have not yet been cataloged

<sup>&</sup>lt;sup>1</sup>One possible explanation for the low distribution effectiveness for NCAD during this time period is the effect of the AOD modernization program. During CY 84 NCAD stocks were consciously drawn down to clear buildings for demolition by interdepot transfers and attrition. Another possible explanation is the possibility that safety stocks are not equitably distributed between AODs because of higher priority for OCONUS customers.

and that in aggregate have average weight and cube, an after-the-fact adjustment was made to SDT cost estimates.

Unspecified destinations. 6% of the LIF data was reported to destination "others," presumably because of an unspecified geographic or installation code in the LIF. Inadvertently, some of these "other" destination lines were caused by failure to break out shipments to National Guard/Reserve units in West Virginia (2105 lines) and Nebraska (2691 lines). After the fact adjustments to cost estimates were made to account for these transactions.

Unspecified sources. 25,240 lines (1.7%) in the LIF file had depot codes other than the 12 specified in LCA Pam 725-1. Some of these lines could have come from some of the Army depots not coded in the LIF such as Sierra, Umatilla, Savannah, Fort Wingate, or Navajo. Others may have been shipped from other services' depots. Also, many may have actually come from one of the twelve depots but were miscoded. No adjustments could be made because of the uncertainty of the causes of designating the source as "other."

Obvious gliche. Three entries in the LIF report strained credibility to the point where an adjustment was necessary. This adjustment was not used in other sections of the report since it concerns shipments from "others" depot. From "other" to Alabama, there were 4542 lines shipped which weighed a total of 313,885 tons or 69 tons per line. The three entries in question are for Air Freight Commercial (205 lines @ 20525 tons), Truckload (2671 lines @ 86952 tons) and Surface Small Package Carrier (736 lines @ 204,352 tons!!!) Cube data was similarly out of proportion. Manual adjustments were made to Table 8-1.

57,291,421,25 51,451,563,57 55,270,562,40 2,511,664.36 43,616,594.30 7,043,522.55 3,671,099.26 15,969,234.44 1 st 13,2t 7.15 2,211,305.51 30,364,456.89 8,239,778.46 1,857,673.76 101,416,512.56 63,922,162.03 5,456,143,46 2,258,263.21 50.50616.69 3,156,167.15 469.04 445.661.cs 96.171,uc5.4E 7,052,361.46 43 ,376,347,95 73.663.664.61 56,435.75 5 .1 25 .65 .73 50.144.12 48,554,466.17 46,657,971.44 3,748,549.74 27,143.55 95,622,714.13 346,508.28 11,669,235.38 79.641,948,781 2,132,221,01 12.144.668.54 7,116.57 4,646.57 14.774.21 VALUE 275,250,691 E1.540.673 864.440.6 165,000,270 244,787,913 16,424.439 24,541.73 134.838.368 119.717.61 113.3% 34,306,503 7,516.430 be 3.88 .698 21,361.436 26.1.1.345 261,425.739 3,1(3,0e) 29,6:1.376 43,8 19.663 17,383.795 214,696.239 93.825.71d 141,883.149 340,340,166 19,618.564 68,961.524 45.460.356 240,368.528 556,517.560 51,91.2.761 432. Lugicz 73,666.472 3,966.507 1,292.041 31,166.722 20,470,521 24 Jan 32 . 662 231,777.601 46,657.762 33,5F2.56*]* 34,004.012 Celc 496,288.53 94,271.04 4,155,479.02 6,615,358,41 6,005,422,76 286,911,49 372,731.18 6,204,389.62 227,542.15 1,104,122,89 7,895,000,85 494,706.95 93, 790.40 842,147.45 2,884,913.11 15,443,471,19 1, 436.58 79: , 116.29 571: 289:62 451,106.68 or 10,539.45 ,566,139.29 .1 HE, 701.66 4077, 170. RZ 7,316,183,35 691,560.51 357, 80.22 24,458.24 557,725.91 .7H1, 392.32 691.4.175.25 84,332,73 807,429.72 5,4911,442,32 1.714.599.71 423,349.64 7.173.67 EXTENDED NE 1641 POUNTS 42,744 4,269 c.617 e.3,050 54,096 386. 32.017 45.696 10.811 6,657 33,740 9.578 5.191 169 5.179 21,034 22,213 59,656 8,774 986 3,924 01,560 11,042 5,952 5,718 1,573 11,373 65,826 1,000 450 41,254 14,930 5.125 t.536 18.914 **ALMBEK** F1. 151. SPI FAALL F1. 13 CUSCLM PULJ ₹ FI. EEN HARNISIN FI. BERNING FI. BILIST FT. LEUNAKE MULD ALC FI. HUACHUCA ALC FI. AIICHIE FI. LEAVENHERTH FI. LEE LEITEKKENNY AU LEXINCTÜN-BL AD INSTALLA TILLY HI. SAN NUUSIUN LLKPUS CHRISTIE FI. LEWIS FI. LEWIS FI. MCCUS rkesivia as se 1. MCCLEILAN MUNESTEAD AFB HI. SHIKIDAN BK AGG CANPELL LAKLISLE EKS FT. MUACHUCA FT. STLWAKT FT. BELVUIA ANNISION AU INSCUM WHES FI. JACKSUN FI. KULKEK HI. CAKSLN FI. Ut VLIS 1. EUST15 1. CUKLIN AILANIA AD INSCEN ANS FI. MUNKLE FI. KILEY HE AU FI. UKB 305 CK CR 1. KNUX F1. SILL

ISU PRUJECT 05.5 MEPLET WEIGHT, CLEE & VALUE AMALYSIS EASED IN CUMUS CEPUT SMIPMENTS DUMING CY 64 SURMAKY SIKATIFICATION BY INSTALLATION

58/37/7

MARKET ST

	NUMBER	EXTENDED	E XIENUE D	ENTENDED
INSTALLATION	nt cukbs	Poures	russ. frt	VALUE PULLARS
THE COMBINE AND AL	047	¥0.04	1,378,638	384,9466,42
FLEBLU AL	106	54.464.33	5.515.578	911.455.00
KED KIVEK AL	996 9	2.186,958.40	50,600.161	13,173,136.92
KLLK ISLAND AL	095.2	300,071.24	15,674.929	11,216,273.41
SACKAMENTU AD	21415	245,758.60	16,365.260	6,454,766.73
SAVALMAN AU	11	11, 134,58	907.362	15,736.85
SENELA AL	129	21.505.72	8,956.314	C 4. 45.7. 488
SHAKFF AL	7115	26,035,14	1,720.236	1,654,403.13
SICKE AL	515	36,419.65	3,461,973	534,604,56
IL DYNALINA AL	6,321	331,229.19	31,599.541	7,065,ú73.5 č
HULE AD	267°3	•	52,949,653	3464,306.80
CPATILLA AU	9/1	11, 862.90	1,354.754	65,135.76
USA METAY ALAL	1.11.			384,434,36
AL ABAMA	17,016	2,466,045.90	170,415.27	20,513,960.46
THI TONA	6.003	507,512.79	3 1,5 15 . 0 6 8	9,431,450.59
APKANSAS	36.48	514,045.71	24.574.387	4.124.201.45
LAL IFUKNIA	308°/ 1	6,220,90,3.24	108.971.160	24,315,084.45
ווופאלמת	3,074	233, 917,76	11,146.919	2,676,507.28
CLNNE I COI	6,013	345,666,36	51,506,433	B . C 37 . C C . C . C . C . C . C . C . C . C
DEL ABAKE	96647	87.505.18 27.506.18	04.6.8.5.0 4.6.3.6.4.0	1 , 41 C pb 56 . 1 c
DISI CUCCHOIA	700 700	66.666.01 66.666.018	F 0 - 84 0 - 47	34.001.001
4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			644 - 644 - 744 644 - 644 - 744	24.45.45.45.45.45.45.45.45.45.45.45.45.45
1CAP	956.0	100000000000000000000000000000000000000	34.251.966	7.316.680.17
111 12015	5,421	681,449.30	25,115,179	4.661,655.69
INDIANA .	1,637	402,293.43	23,112,500	3,113,664.45
J. m.A	4,326	267,191.65	19,124,052	1,415,861.44
KANSAS	4.686	533,521:19	24,865.334	7,764,705.27
ALN TUCKY	4.965	32( ,657.8%	22.841.637	2,765,306.26
LLUISTANA	621.11	1.175.161.24	67,153,179	6,00¢,296,34
	06647	14.100.13	1501 10.437	11.202046101
KAN KANDAN KANDAN KAN KAN KAN KAN KAN KAN KAN KAN KAN K	916.4	18-561-359	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5.323.623.20
FICHTON	41.714	732.622.97	41.953.371	4.412,723.76
MINNE SUT	1,367	863.546.59	42,653.626	5,388,952,69
FISSISSIFFI	14,752	1,615,120,52	52,261.613	25,523,612,43
KISSUUKI	160.6	696.540.42	44,982,686	14,664,155,67
FLNIANA	3,113	217,950.54	12.871.5%	3,750,023.10
N. CAKULING	9+550	703,144.03	34,934,924	9,649,653,15
N. CAKUTA	1,536	124,381.07	1,716.161	545,466.66
NE VADA	20202	247, 376, 79	4.120.129	1,907,150.67
	F 44 1	F7.255.03	13,516.401	446,174,12
Z.	\$0\$°51	40.00.416	(2,875,175	16,620,116,45
NEW MEASURE	96647	#/ * # # # 1 F	11.462.578	2 2 11 1857 65
FIN TURK	69/131	36.64.54.1	03,235,789	10,404,404,01
10. 1C		1 6 66 9 6 6	FC0-85C-35	7.000000000000000000000000000000000000
LALFRUMA	95042		976.526.10	10.035.67.672
	10160	71.026.104	100.00000	7 - 1 - 1 - 1 - 1 - C

ISU PRUJECT 053 REPURT WFIGHT, CLRE & VALUE ANALYSTS BASED UN CUNUS DEPUT SHIPMENTS DUKING CY 64 SUMMARY STRATTFICATION BY INSTALLATION

INSTALLATION	NUMBER UF KE CUKDS	EXTENDED NETCHT POUNDS	EXTENDED CUBIC FEET	EXTENDED VALUE DOLLAKS
PE NNS Y L VAN I n	10,523	761,759.88	43.527.181	10.635.015.33
ARULE ISLAND	545.2	140,859.94	1.170.076	1.430.364.1
S. CAKULINA	6,436	516,524.57	34,589,613	3 4 4 6 6 5 7 8 4 8
S. DAKUTA	2,360	252,720,33	13,367,478	1.373.754.75
JENNESSEL	0,326	541,047.64	21,772,538	0.400.400.
It AAS	10,659	984,190.30	53,325,962	46.666.611.71
UIAH	3,654	2 10,609.25	10.192.766	3 -71.7 -640 - 34
VE KHUN ]	2.451	234,423,92	11,337.079	1.027.385.75
VINCINIA	7,319	24°466°546	33.645.964	5 . 376 . 752 . 75
MASHINCILA	4.613	604,836.47	20.441.079	4 .542 .169 .95
NI SCUNSIN	7,313	706,791,03	29,374,765	4 . 6 78 . 2 75 . 0 1
HUMING	1.463	83. J11.58	3.9.6.506	1 - 1 64 - 336 - 20
CIMERS	961,08	18,382,954,42	677,211,000	160.616.649.91
	1,443,245	155, 206, 078.34	6,931,253,345	1513,767,909.38

TABLE 8-2. List of Top 20 High Demand Army Installations - Class IX, CY 84

Rank	Installation/State	No. of Lines Received	% of Total	Cum %
1	Ft Hood, TX	135,934	9.4	9.4
2	Ft Bragg, NC	68,695	4.8	14.2
3	Ft Riley, KS	65,826	4.6	18.8
4	Ft Stewart, GA	63,050	4.4	23.2
5	Ft Knox, KY	61,560	4.3	27.5
6	Ft Carson, CO	60,555	4.2	31.7
7	Ft Lewis, WA	59,658	4.1	35.8
8	Ft Polk, LA	47,373	3.3	39.2
9 ,	Ft Bliss, TX	45,696	3.2	42.4
10	Corpus Christi AD, TX	44,392	3.1	45.5
11	- Ft Campbell, KY	42,744	3.0	48.5
12	ANAD, AL	38,914	2.7	51.2
13	Ft Ord, CA	33,740	2.3	53.5
14	Ft Benning, GA	32,017	2.2	55.7
15	Ft Irwin, CA	22,213	1.5	57.2
16	Ft Meade, MD	21,254	1.5	58.7
17	Ft Rucker, AL	18,536	1.3	60.0
18	LEAD, PA	18,022	1.2	61.2
19	Alabama *	17,818	1.2	62.4
20	California *	17,808	1.2	63.6

<sup>\*</sup> Reserve/National Guard units.

TABLE B-3. Sources of Supply - CONUS Class IX Items to Army Customers - CY 84

				-				
Depot	# Lines	% Lines	Weight S-Tons	% Weight	Çube Ft <sup>3</sup> x1000	% Cube	Dollar Value \$M	% Value
RRAD	682,458	47.3	29304	37.8	2,553	36.8	537	28.1
NCAD	439,892	30.5	17182	22.1	1831	26.4	382	20.0
SHAD	190,039	13.2	8154	10.5	845	12.2	123	6.4
LEAD	30,362	2.1	1921	2.5	165	2.4	41	2.1
TOAD	18,657	1.3	673	6.	35	ę.	27	1.4
LBDA	12,875	6.	536		37		12	9.
ANAD	12,695	6.	7515	7.6	515	7.4	282	14.7
SAAD	12,070	ω.	287	₹,	22	۳.	39	2.0
CCAD	10,175	.,	265	ထ္	128	1.8	229	12.0
TEAD	6,459	4.	3791	4.9	252	3.6	37	1.9
SEAD	1,870	.1	47	<b>.</b>	7	.1	-	.1
PUDA	453	0.	36	0.	<b>∞</b>	.1	2	e.
OTHER	25,240	1.7	7536	7.6	533	1.1	197	10.3
TOTAL	1,443,245	6*66	77604		6931		1912	

TABLE B-4. Distribution of Commodity Groupings - CONUS, Class IX, CY 84

Comma nd	Commodity	% Lines	% Weight	% Cube	% Dollars
AMCCOM	Armament, Munitions, Chemical	18.5	2.7	4.2	9.0
CECOM	Electronics	11.9	3.1	2.1	8.0
MICOM	Missiles	3.3	.5	1.4	14.5
TACOM	Tank Automotive	48.5	89.5	81.8	38.4
TSARCOM	Troop Support Aviation	17.8	4.3	10.5	30.1
OTHER	?	.1	0	0	.1

TABLE B-5. Distribution of Shipment Mode for NCAD, RRAD, and SHAD; CONUS, Class IX Army Customers, CY 84

	LINES	<del></del> 5	WEIGH	нт	
<u>Mode</u>	Number	70	(Tons)	7 8	Avg Wt/Line (1bs)
Truckload	749,587	60.6	40,497	77.8	108
Less Than	96,280	7.8	9,767	18.8	203
Truckload					
Small Package	266,007	21.5	924	1.8	7
Air	125,950	10.2	888	1.7	14
TOTAL	1,237,824		52,076		

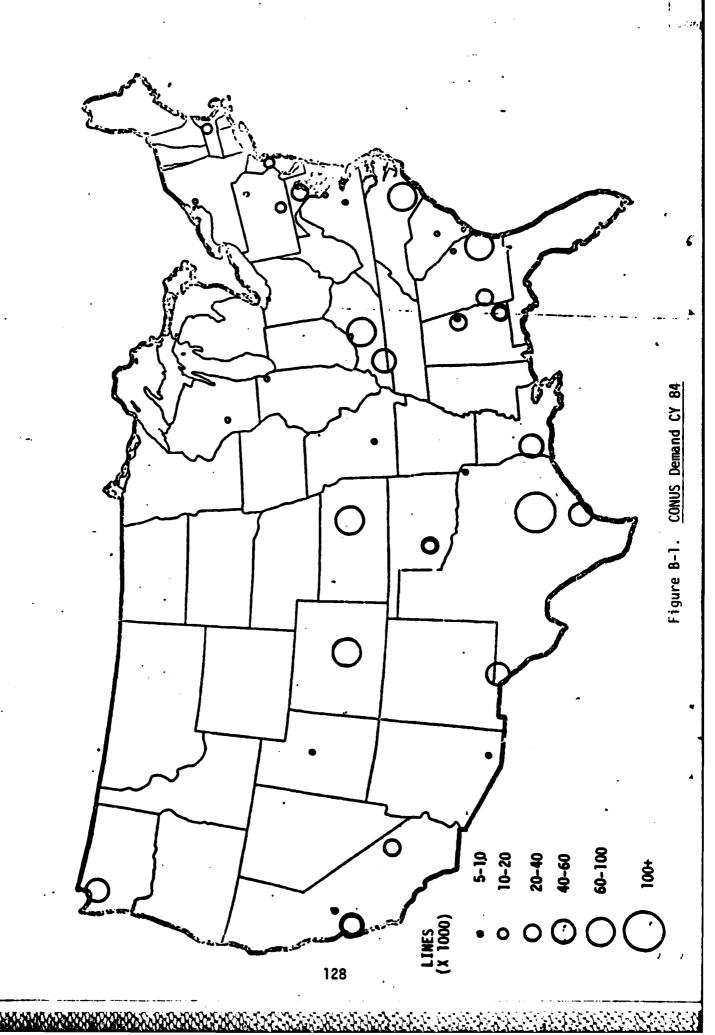
TABLE 8-6. Distribution Effectiveness by Mode of Transportation and Source

MODE	DISTR EFF
TRUCKLOAD	90%
LT TRUCKLOAD	71%
SMALL PACKAGE	63%
AIR	472
OVERALL	78%

DEPOI	DISTR EFF
NCAD	61%
RRAD	93%
SHAD	742
OVERALL	78%

TABLE B-7. Out-of-Area Shipment Distribution - CONUS Customers

Source Depot	Area Shipped Into	Lines Shipped	Tons Shipped
NCAD	RRAD	145948	7578
	SHAD	25750	1034
RRAD	NCAD	30195	1033
	SHAD	19428	1477
SHAD	NCAD	13843	458
	RRAD	35295	1978
TOTAL OUT-OF-AREA		270459	13558
TOTAL SHIPMENTS		1226791	51213
PERCENT		22%	26.5%

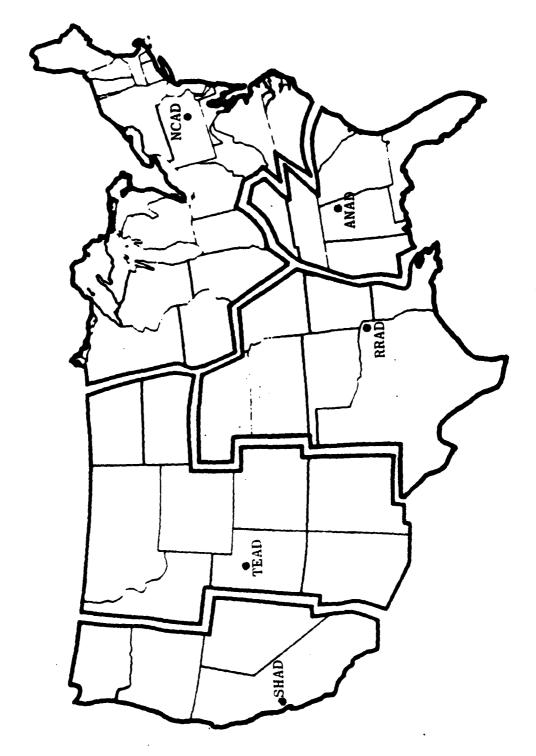


APPENDIX C

ALTERNATIVES

Figure C-1. Alternatives 1 and 1A

Figure C-2. Alternative 2



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parators expenses coorders conserve analysis strings this

see transcent proposed proposed represent

Figure C-4. Alternative 4

Figure C-5. Alternative 5

PROPERTY INVESTIGATION TO THE PROPERTY OF THE

Figure C-6. Alternative 6

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APPENDIX D

STUDY PLAN

#### PROPOSED STUDY PLAN

TITLE: LSO Project 053: Wholesale Stock Positioning and Distribution Policies

#### 1. REFERENCE.

- a. Message, DRCSM-PST, HQ DARCOM, 11 April 1984, subject: Study of Wholesale Stock Positioning and Distribution Policies.
- b. Proposed Study Plan, 22 June 1984, LSO Project 053: Wholesale Stock Positioning and Distribution Policies.
- c. Letter, DRCSM-PST, HQ DARCOM, 26 July 1984, subject: Wholesale Stock Positioning and Distribution Policies.
- 2. <u>PURPOSE</u>. Provide assistance to AMC in determining the effect of past, present, and anticipated future proposals to modify the wholesale physical distribution system.

## 3. STUDY SPONSOR.

- a. US Army Materiel Command (AMC)
  ATTN: AMCSM-PST
  5001 Eisenhower Avenue
  Alexandria, VA 22333
- b. Study Sponsor Representative: Mr. Frank Toner AV 284-8800

#### 4. STUDY AGENCY.

- a. US Army Materiel Systems Analysis Activity Logistics Studies Office (AMXSY-LLSO) Fort Lee. VA 23801-6046
- b. Representative: Mr. Paul E. Grover AV 687-2302

# 5. TERMS OF REFERENCE.

# a. Background.

(1) Since 1970, OASD (MRA&L) has supported initiatives to standardize all, or part, of the Defense Logistics Agency (DLA) and the services' logistics systems into a single operating entity. In 1980, OASD (MRA&L) tasked the DOD Logistics Systems Analysis Office (LSAO) to conduct a long range (5 years) study

program to evaluate DOD materiel distribution system policies. A product of this program was a study titled, "Wholesale Interservice Depot Support (WIDS)," dated July 1982. It proposed that savings can be realized in second destination transportation costs if services would position their stocks at depots closer to the customers without regard to depot ownership. Although the services agreed with the general concept of WIDS since they presently do position stock in other services' depots where it is beneficial to both parties, they rebutted the WIDS study due to perceived shortcomings in the computations and methodology. Subsequently, the WIDS proposal reappeared as part of the Grace Commission recommendations.

- (2) Following the Vietnam conflict, the Army stock positioning philosophy changed from decentralized storage in many depots to the more centralized Area Oriented Depot (AOD) concept. A study done by this office in April 1973 based on FY 72 demand data recommended a four depot AOD structure. The WIDS analysis, also concluding that a four region system is needed DOD-wide, noted that the Army has a high concentration of demand in the Southeast but no nearby supply depots. Given the Army's changing demand patterns over time and the controversy of claimed improvements in transportation costs, an independent analysis of stock positioning policies has been initiated by the sponsor.
- b. Objective. Determine the impact of expanded stock positioning on the Army wholesale logistics system.
- c. Scope. This study will encompass the Army's present depot system. Depots included will be New Cumberland Army Depot, Red River Army Depot, Sharpe Army Depot, Anniston Army Depot, Lexington Bluegrass Depot Activity, Pueblo Depot Activity, Tooele Army Depot, and Letterkenny Army Depot.

#### d. Limits.

- (1) This study will examine only Class IX Army secondary items.
- (2) Items that are currently not stored at the three existing AODs for general distribution are excluded.
- e. Time Frame. This study will be conducted in the current time frame under peacetime conditions.
- f. Assumption. Overseas shipments will continue to pass through the present container consolidation points.

# g. Essential Elements of Analysis (EEA).

- (1) To determine the total cost of the physical distribution system associated with different levels of wholesale stock positioning. Beginning with the current level of three AODs, additional depots will be added to the distribution system to determine the total cost which is the sum of:
- (a) First Destination Transportation (FDT) cost Transportation charges incident to shipping from the source of production or repair to the AOD.
- (b) Second Destination Transportation (SDT) cost Transportation charges incident to shipping from the AOD to the customer.
- (c) Depot Operating Costs Costs associated with the receipt, storage, and issuing functions of the AOD.
- (d) Nonrecurring Costs One time costs associated with each distribution alternative to include facilities, equipment, ADP system changes, inventory costs, and other costs.
- (e) Recurring Management Costs Annual costs associated with managing each distribution alternative at Depot Systems Command (DESCOM), each National Inventory Control Point (NICP), and the ADP system design agencies.
- (2) To determine the wholesale logistics supply effectiveness associated with each distribution alternative. Effectiveness measures to be determined are:
- (a) Order Ship Time The time period from the date the requisition is initiated by the customer until the date the item is received by the customer.
- (b) Distribution Effectiveness The percentage of time that a customer receives an item from the proper depot (closest AOD).
- (3) To evaluate the stock positioning methodology currently employed and to develop and analyze alternative methods.
- h. Models. Analysis will be performed in two phases, addressing the problem from two viewpoints. Phase I will be a short "macro" level analysis which will provide approximate estimates of costs and effectiveness by looking at the total stocks and their movement within Continental United States (CONUS). Phase I will provide order of magnitude costs and savings and will support the decision to apply more analytical resources for the next phase. Phase II will be a detailed model development which will address the impact of stock positioning on selected

items. A simulation of selected items will be developed and executed to provide a more complete and accurate evaluation of the EEA.

#### (1) Phase I.

- (a) Phase I will address EEA provided in para 5g(1) and 5g(2)(a) only.
- (b) Based on CONUS demand patterns, the workload of each supply depot for each alternative will be quantified. Transportation costs will be estimated by applying aggregate shipping rates based on distance and weight or cube. Other cost estimates will be obtained via questionnaire or parametric analysis from existing data. Order ship time estimates will be developed based on data from previous studies.

## (c) Data requirements:

- 1. Data Call 1 To Logistics Control Activity. To obtain data on sources of demand for the population, special logistics intelligence file reports will be obtained to provide geographical distribution of demand. In addition, a magnetic tape of CONUS transactions will be obtained containing National Stock Number (NSN), document number, supplementary address, weight, cube, point of shipment, and mode of shipment.
- 2. Data Call 2 To Military Traffic Management Command. Current transportation rates and factors will be needed for each mode of transportation included in the model.
- 3. Data Call 3 To HQ AMC. Budget data will be obtained on Class IX Procurement (stock fund), supply depot operations, SDT and FDT if available.
- 4. Data Call 4 To DESCOM. Financial data on SDT and operations such as the 305 report and 55-9 report.
- 5. Questionnaire 1 To system design agencies. The nonrecurring and recurring resource implications associated with each option pertaining to changes to the CCSS and Standard Depot System will be elicited.
- 6. Questionnaire 2 To DESCOM. The nonrecurring costs associated with upgrading the status of the existing non-AODs to AOD status will be elicited.
- 7. Questionnaire 3 To each NICP. The nonrecurring and recurring resource implications associated with each option will be elicited. In addition, each NICP will select several "typical" NSNs and perform a cost analysis on a representative

procurement of the FDT costs, varying the number and locations of destinations.

- (d) Because of time restrictions and manual calculations anticipated, not all combinations of supply depots will be analyzed. Starting from the existing three AODs, a single fourth depot will be added by judging which of the remaining five best matches the geographical demand distribution from Data Call 1. Likewise, a single combination will be chosen and analyzed for 5, 6, and 7 depot alternatives.
- (2) Phase II Simulation Model. Data for EEA para 5g(1)(d) and (e), nonrecurring costs and recurring management costs, will be obtained via questionnaire from NICP, DESCOM elements, and system design agencies (from Phase I). Remaining EEA will be determined through the use of a simulation model to be developed that will enable the analyst to vary the number and location of supply depots as follows:
- (a) General Description. A distribution network will be developed to include nodes for customers (demand), NICPs, supply depots, and producers. For a representative sample of National Stock Number (NSN) items, a stochastic simulation using Simulation Language for Alternative Modeling (SLAM) will be run to assess EEA. SLAM, a state-of-the-art simulation language developed by Pritsker & Associates, Inc., will be used in conjunction with user written code to maximize sample size and minimize computer run time.
- (b) Major Processes to be Modeled. Two processes judged to be relevant but of relatively insignificant consequence are the denial process and the interdepot transfer of stocks to correct stock imbalances. The following processes will be modeled:
- l. Demand process For each NSN, demand will be modeled as requisitions and Foreign Military Sales (FMS) transactions. Overseas demands and FMS demands will be consolidated as a single node per theater. CONUS demands will be modeled based on the Demand Return and Disposal File (DRD). Demand distribution of the sample will be matched against a special Logistics Intelligence File report to insure that sample CONUS demand is representative of overall CONUS demand.
- 2. Material Release Order (MRO) process When the requisition is sent to the NICP, a decision must be made concerning which supply depot should satisfy the demand. This process will be modeled to simulate the automated Commodity Command Standard System (CCSS) per CCSSOI 18-725-100.
- 3. Shipping process When the supply depot receives the MRO, a transportation officer must decide upon the means of

transporting the line from the depot to the customer (SDT). The model will analyze the factors that influence mode of transportation and select the appropriate mode.

- 4. Replenishment process When depot stocks for a given NSN fall below the reorder point, new stocks must be obtained. The model will replenish stocks per the logic contained in CCSSDI 18-710-102.
- a. Consumables When the reorder point is reached, a procurement action will be initiated and the receiving depots will be allocated their share of the buy. After an appropriate delay associated with lead times, stocks will be shipped from the producer to the depots (FDT).

CONTRACTOR CONTRACTOR DESCRIPTION OF THE PARTY OF THE PAR

- b. Reparables Reparables that are washed out will be replenished as consumables per the above paragraph. Repaired items will be sent from the maintenance depot to the supply depot after the appropriate lead time. The return process will not be modeled since the cost of transporting returns is not affected by the number and locations of supply depots.
- (c) Sampling plan For the model to be valid, the sample of NSNs modeled must be sufficient and representative of the total Army secondary item supply items processed by AODs. Although the exact limits of the sample size cannot be determined at this time, hardware and software constraints will limit the sample size. At this time, it is projected that computer run time will limit the sample size. An upper limit of 6000 NSNs per run is planned, with a lower limit of 1000 NSNs required for validity. selecting a sample, a verification/validation procedure will be used to insure that the sample is representative. Comparisons on weight, cube, unit price, commodity type, geographical distri-. bution of demand and production, transportation modes, and other NSN attributes must be made against known population attributes. Since some of the sample attributes cannot be determined before running the model, it may be necessary to revise the sample iteratively to obtain representation. Two strata of samples will be taken and run independently through the model.
- 1. High demand items A sample will be selected from the top 1000 items in each NICP's order of merit listing (see para 5h(2)(e)1). This sample will tend to exaggerate cost differences between distribution alternatives and should present an upper limit on savings associated with the best alternative.
- 2. Low demand items A sample will be selected from a median range of 1000 items in each NICP order of merit listing. This sample will highlight stock positioning policy problems associated with slow moving items and will tend to present a lower limit on associated savings for the best option.

- (d) Model execution The model will begin with an analysis of the existing three AOD structure for low and high demand samples. This will represent the baseline alternative. Additional depots will be added to the structure according to the Keuhn-Hamburger heuristic in an effort to find the combination that minimizes total cost.
- (e) Data requirements In addition to the Phase I data four separate data calls and one separate questionnaire will be needed to obtain the necessary data. In addition, it is probable that a supplemental data call will be needed at the later stages of the study to police up unforeseen data requirements.
- 1. Data Call 5 To each NICP, sort through the NSN Master Data Record (NSNMDR) by RANK-CMD (in Sector 13) and identify the top 1000 NSNs and the middle 1000 NSNs. The purpose is to provide data from which a sample will be selected. For each NSN, provide:
  - a. NSNMDR Header.
  - b. NSNMDR Sector 5/001.
  - c. NSNMDR Sector 10/001.
  - d. NSNMDR Sector 16/001, 16/004, and 16/005.
  - e. NSNMDR Sector 8/001 and 8/002.
  - f. NSNMDR Sector 13/001, 13/002, and 13/006.
  - g. NSNMDR Sector 15/001.
  - h. Complete DRD file.
- 2. Data Call 6 To DESCOM. To obtain additional data on operating cost and SDT, TDY and data requests will be necessary to HQ DESCOM and selected depots.
- a. Second Destination Transportation Data HQ DESCOM, New Cumberland Army Depot.
  - b. Operating Cost Data DESCOM comptroller.
- 3. Data Call 7 To Defense Logistics Service Center. To obtain the cross reference file that relates the Contractor ID number to names and addresses of contractors. This information is needed to match the data in para 5h(2)(e)1 c to known population data to insure sample representation in terms of geographical distribution of production sources and to locate procuders for contracts less than \$25,000.

- 4. Data Call 8 To Logistics Systems Support Activity. Access to the HQMIS is needed to identify the "Principal Place of Performance" on the DD Form 350 file. This information is needed because the contractor's address may not be the actual place of production. Unfortunately this system only applies to contracts that exceed \$25,000.
- 5. Data Call 9 Supplemental Data Call. Since not all possible data requirements can be identified at the beginning of this study, a supplemental data call to an unspecified source for unspecified data is considered prudent for planning purposes.
- 6. Questionnaire 4 To each contractor for NSNs sampled (see para 5h(2)(c)) a voluntary questionnaire will be sent to obtain information on production source, FDT, and the impact of the number of receiving depots on shipping costs. WARNING: Obtaining data from Defense contractors is restricted by "Paperwork Reduction" policies. Although this step will provide a better quality product, the study can be done without this questionnaire.

# 6. SUPPORT AND RESOURCE REQUIREMENTS.

#### a. The study sponsor will:

- (1) Appoint a Study Advisory Group (SAG), under the provisions of AR 5-5 (Army Studies and Analysis), to provide advice and assistance to the study agency and to other participants providing input to the study.
- (2) Provide guidance, conduct in-process reviews, perform approval functions and request the release of data and/or provide coordination with major subordinate commands, HQ AMC directorates and higher headquarters as necessary.
- (a) The study sponsor will staff and monitor all data calls on the critical path (Data Calls #5 and #9, and Question-naire #4). Data Call #5 tasking at the General Officer level is desirable to meet study milestones.
- (b) The study sponsor will staff and monitor any other data calls upon request of the study agency.
- b. The Commandant, US Army Logistics Management Center, will provide all data processing requirements, including the SLAM model for study agency use.
- c. The study agency will develop models, specify data requirements, obtain data except as noted in 6a(2), participate in inprocess reviews, prepare final briefings and reports. Resources to complete this study, to be provided by the study agency, are estimated in Enclosure 1.

# 7. ADMINISTRATION.

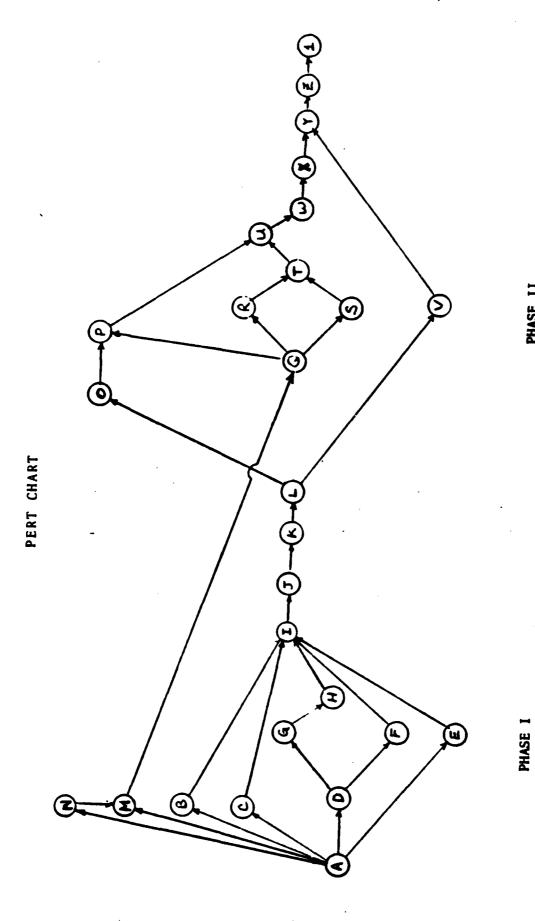
- a. Study Title. Wholesale Stock Position and Distribution Policies.
- b. Study Schedule. If this plan is approved by the study sponsor and the Chief, Logistics and Readiness Division, AMXSY-L, the study will begin on 1 January 1985. Phase I can be completed by 30 July 1985. The entire project (Phase II) can be completed by August 1986. Because of the long term nature of this study, the effort is highly susceptible to interruption by higher priority, quick reaction studies that demand study agency resources. Further details are provided in Enclosure 2.
- c. Control Procedures. Project control will be exercised through the Study Advisory Group at the In-Process Reviews scheduled in Enclosure 3. Informal communication between the SAG members, study sponsor, and study agency is encouraged.
- d. Study Format or Outline. Deliverable reports will conform to LSO Note 3.6 dated 10 September 1980, subject: Report Organization and Format. Computer code and model documentation will be included as an appendix to the final report or published as a separate volume.
  - e. Action Documents. None.
- 8. STUDY MILESTONE CHART. Enclosure 3 shows the milestones for critical path activities only. Other tasks will be accomplished while awaiting data.

3 Encl

# PROJECT COST

The research capability and personnel of the Logistics Studies Office will be used exclusively to conduct the study. Resources to complete the study are estimated to be as follows:

a.	Tota	l professional man-months:	39.0
b.	Cost	s:	
	(1)	Direct project related labor	\$113,200
	(2)	Supervision and project management	19,600
	(3)	Travel	9,800
	(4)	General and administrative overhead	32,700
		Total Inflation Factor (OMA)	175,300 (FY 83) X 1.113
		TOTAL COST	\$195,100



Enclosure 2

148

NO TOUR

# PHASE I AND II - PARALLEL PERT CHART LEGEND IN-HOUSE EFFORT

TASK	DESCRIPTION	TIME (WEEKS)	LSO MAN WEEKS
AB	Questionnaire 1	8	1
AC	Data Call 3	8	1
AD	Data Call 1	5*	2 2
AE	Data Call 4	2	2
DG DF	Questionnaire 2	12*	4
GH	Questionnaire 3 Data Call 2	12 1*	1
BI	Data Analysis	i	1
CI	Data Analysis	i	i
ĬĬ	Data Analysis	<b>4</b> *	4
FI	Data Analysis	1	1
EI	Data Analysis	1	1
IJ	Data Synthesis	1*	1
JK	Write Report	2*	2
KL	Brief Phase I	1*	1
	SUBTOTAL	26*	27
LO	Construct Skeleton Model	8	8
AN	Data Call 7	5	. 1
AM	Data Call 5	12*	4
LV	Data Call 6	8	. 8
NM	Data Analysis	4 16	4
MQ QP	Data Analysis Model Evolution 1	4	32 4
QP	Data Input	Ž	
QR	Questionnaire 4	8*	2 2 4 2 1 4
0S	Data Call 8	4	4
ŔŤ	Data Analysis	2*	2
ST	Data Analysis	1	1
PU	Model Evolution 2	4	4
TU	Data Input	1*	1
UW	Final Model Development	4*	8
MX	Run Model	4 <b>*</b> 2 <b>*</b>	8
XY VY	Sensitivity Analysis Data Syntheses	2* 1	1
YZ	Write Draft Report	4=	Ä
ŽĪ	Briefing and Final Report	8*	1 8 4
Not shown	Data Call 9	8*	4
	•	ž.	٥
ALLOWANCES	Leave	4*	8
	Training & Seminars Annual Review	2* 2*	4 2
	In-Process Reviews	4*	8
			163

<sup>\*</sup>Critical Path 81 weeks

STUDY MILESTONE CHART

TITLE: LSO 053, Wholesale Stock Positioning and Distribution Policies (In-House Effort)

MILESTONES	FY 85	F Y 8 6
Phase I		
Data Call 5 Obtain data Analyze data		
Questionnaire 4 Obtain data Analyze data	7	
Data Call 9	7	
Model Development		
Write draft & final report		

△ Reviews

# APPENDIX E

# SECOND DESTINATION TRANSPORTATION COST MODEL CALCULATIONS

Mode	Pa ge
Truckload Calculations	152
Less Than Truckload Calculations	158
Small Package Calculations	164
Air	170

ALT. NO DE	BUCKFOVE	•													
DESTINA-	NCAO LINES	NCAG WEIGHT	NCAD T/LOADS	NCAQ COST	RRAQ LIMES	RRAD WEIGHT	T/LOADS	COST	LIMES	SHAD WEIGHT	SHAD 7/LQA <b>0</b> \$	SHAD	MILEAGE I	RRAD H	SHAD
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N. CARO	2105	174	21	19979	7	16	2	1736	_	•		-	372	1814	2743
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MICH	1182	161	19	11364	15	31	3	3357	٠,	1	•	278	479	1025	2374
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MEAGE	3805	94	11	3971	•	•	:	:	3	•		1772		1143	27 <b>98</b> 17 <b>90</b>
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DIX	1340	147	17	6691	2	•		•	,	•	4	•	1 134 267	1327	2867 2895
LACKSON	4622	164	19	7061 7973	2	•	•	1000					574		1627
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PULK	2772	195		18047	41191	1781		41320	32	• • •	14	1850 24880			1972 1680
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DHEGON HASHNEN	34			1856	1			8167	1.2	24	2	213	5 2712	2216	773
INWIN	1534	516	61	114496	114			54320 61151	13731			46797 92865			160
LEWIS URD	2641 32	271		7448	4715			21241	19641	491	105	3160	3 2844	1611	141
PR\$1010				27		. 11		1210	14		1	136			81 877
HUACHUC SAAD	1 0	1		215	•		•	•	1	• •	•	(	2669	1841	12
FEAD	507			17973	•	, 1	•	16	5010	443	14	2583	3 2071	1389	492
TOTAL	1 18 199	11261	1275	1144770	302064	21691	1840	1277199	1072	4940	471	16002	•		

TOTAL COST 2781999
TOTAL LINES 741444
TOTAL WEIGHT 19848

ALT. NO ONE IDEAL PERFECT STOCK POSITIONIN

	RUCKLOA													
DESTINA- TION	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAO LINES	NCAD WEIGHT	NCAD T/LOADS	NÇAD LINES	NCAD WEIGHT	NCAD T/LOADS	TOTAL T/LOADS		MILEAGE NCAD		
		0	•	1	0	•	•		0	0		543		
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MASS COMM/RI	2074	147	17	2		:			•	17	9341			
NEW YORK	3283	302	16	i	ě	•	3	11	1	37	17735	3 267		
PENN	255	27 74	3	73	2	0	31	1	- :	4	1287			
NJ /DEL MD / DC	946 27	1		'	•	ĕ			ě	š	,,,,,,			
VAIW.VA	17	116	14	3		1	3	7	1	15	7231			
N. CARO S. CARO	2305 1941	174 113	21 13	7	16	2			9	· 23	12001			
01110	41	26	3	9	33	4	_	_	•		3776	174		
MICH INDIANA	1182 17	161	19	15	31	:	3		•	` 13	13661			
ILL.	1615	190	22	7	. 1	•	1	1	•	23	17314	745		
WISC MINN	15 17	36 26	•	:	20 19	2 2	2	•	•	7 3	5251 5076		·	
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TEXAS ORLA ORLA KANSAS NEBIDAR KANSAS NEBIDAR KOL WYO NEW MEX COL WYO NEW MEX CARSON HOUD POLK RILEY SAM HOU STEWART BENNING BLISS GURDON KNOX L. WOOO MCCLELN RUCKER SILL CCAD ANAD RRAO MNT/IOA UTAH/NY ARIZONA	3 719 36 1 8 1 5963 2891 20990 2277: 3 3144 1390 1663 37 789 2021 6893 4089	20 3 77 4 0 179 496 1038 293 - 370 0 462 233 231 0 1016 69	2 1 8 0 0 0 0 19 31 24 0 0 32 27 24 0 70 70 70 14 2 5 67	1924 411 9330 282 282 364 877 29332 42669 99385 31721 47192 13 40976 31464 2883 11362 10299 36171 28457 10	63 98 425 19 2 8 522 603 1994 1781 17390 17390 1813 1340 1013 1340 133 260 2143 256 2143 7	7 10-6 45 2 2 0 1 4 6 6 4 127 402 118 125 15 1 118 125 125 125 125 125 125 125 125 125 125	5 29 9 50 9 52 32 30 13 13 13 13 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	0 0 116 23 170 116 36 84 0 0 0 0 0 28 2 0 0 130 172 63 3	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	9 11 53 2 0 1 6 83 164 489 119 163 137 138 1 190 16 9 21 15 11 190 6	5454 4843 31411 1865 165 359 2508 35993 18983 48763 8633 577 14667 91846 191 102799 14901 43001 2502 10917 37867		325 323 328 490 1010 946 501 501 501 502 210 326 210 326 210 647 647 642 562 642 562 643 564 646 564 646 564 646 564 646 646 646	837 441 491
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TEXAS OKLA OKLA KANSAS KEBIDAK KANSAS KEBIDAK KODL/WYO NEW MEX CAMPBEL CARSON HOOD POLK RILEY SAM HOU STEWART BENNING BLISS GURDON L. WOOD MCCLELN RILEC SILL CCAD ANAD RRAD WNT/IDA UTAH/NY ARIZONA CALIF OREGON WASHITN IRWIN	3 719 36 1 8 1 5963 2891 20990 2277 3271 33144 1390 1663 2 2 3339 351 3789 2021 6893 4089	20 3 3 77 4 0 3 179 494 1038 295 - 370 0 462 335 231 0 1016 69 0 132 640 636	2 1 8 0 0 0 19 33 74 72 24 0 0 7 7 24 67	1524 411 9330 282 27 564 87 29332 42669 99585 31721 47192 134437 2383 11362 10299 36171 28457 10	63 98 98 425 19 2 8 52 603 1904 5790 1781 (730 6 1043 1313 130 6 1643 110 133 260 373 260 2143	7 10-45 2 2 0 1 6 64 127 110 127 110 127 110 127 127 127 127 127 127 127 127 127 127	1 1 2 2 4 2 4 1 2 1 2 1 2 1 2 1 2 1 2 1	0 titl 186 23 170 116 36 86 0 0 0 0 28 0 12 63 177 63 177 24 63 1316	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	9 111 53 2 0 1 1 6 83 148 149 119 163 137 137 138 17 19 16 17 19 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	5454 4843 31411 1865 1066 359 2508 35993 145983 48703 86531 14904 6255 191 10277 8966 8099 14901 43002 10917 37893 12502 10917 37893 1357 1773 1473 1473 1473 1473 1473 1473 147		325 323 328 490 1010 946 501 501 501 501 502 603 603 604 603 604 604 604 604 604 604 604 604 604 604	441 491 200 583 773 180
TEXAS OKLA OKLA KAMSAS KEBIJOAK COL/WYO NEW MEX CAMPBEL CARSON HOOD POLK RILEY SAM HOU STEWART REMNING BLISS GURDON KNOX L. WOOD MCCLELN RUCKER SILL CCAD ANAD RRAD WNT/IOA UTAH/NY ARIZONA CALIF OREGON WASHINTN	3 719 36 1 8 1 5963 2891 20990 2277 3271 3 3144 1390 1663 3 789 2021 6893 4089	20 3 77 4 0 3 0 179 496 1058 293 373 231 0 1016 69 0 132 23 636 636	2 1 8 0 0 0 0 0 19 33 7 20 26 6 0 0 32 7 24 0 70 7 7 0 0 0 14 2 5 6 7	1924 411 9330 282 282 7 364 29332 42669 99585 31721 47192 134464 2835 11162 10299 36171 26457 10	425 199 425 199 28 522 603 1994 1781 17390 1874 1313 1340 10 110 110 113 260 2143 266 2143 77 0 13 13 13 266 2143 13 27 13 27 14 14 15 17 17 17 17 17 17 17 17 17 17 17 17 17	7 10-6 45 2 2 0 1 6 64 127 402 118 125 5 1 1 114 127 28 146 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5 29 9 32 30 13 13 14 12 14 12 14 17 14 12 14 17 15 17 17 17 17 17 17 17 17 17 17 17 17 17	0 0 116 23 170 116 36 84 0 0 0 0 0 28 8 0 12 63 177 24 1316 1217 24	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 111 53 2 0 1 6 83 148 148 149 163 137 138 139 149 21 31 31 31 31 31 31 31 31 31 31 31 31 31	5454 4843 31411 1865 359 2598 39993 180884 48763 48763 571 10477 91845 6253 102791 14901 43001 25024 1993 1291 1291 1291 1291 1291 1291 1291		325 323 328 490 1010 946 501 501 501 501 502 603 603 604 603 604 604 604 604 604 604 604 604 604 604	441 491 200 583 773 380 758
TEXAS ORLA ORLA KANSAS NEBIDAR KANSAS NEBIDAR KANSAS NEBIDAR KANSAS NEBIDAR KANSAS NEBIDAR MODO NEW MEX CAMPBE SAM MOU STEWART BENNING BLISS GURBON KNOX RUCKER SILL CCAD ANAD RRAD WATIONA CALIF OREGON WASHNINI LEWIS ORB PRSIBIO RR	3 7199 36 1 8 1 5963 2691 20090 2277 3 3144 1390 1663 3 789 2021 4089 47 2 2 3 4 4 7 2 3 3 4 4 7 2 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4	20 3 77 4 0 179 496 1058 295 - 370 0 1016 69 1016 69 60 63 64 65 65 67 67 67 67 67 67 67 67 67 68 68 68 68 68 68 68 68 68 68	2 1 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	1524 411 9330 282 27 564 87 29332 42669 99585 31721 47192 134437 2383 11362 10299 36171 28457 10	63 98 425 19 2 8 522 603 1904 5790 1781 (730 9 1874 1315 133 260 2143 110 133 266 2143 13 13 13 13 13 13 13 13 13 13 13 13 13	7 10-6 45 2 2 0 1 1 64 45 40 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5 29 30 9 32 36 6 73 13 6 6 74 74 12 13 13 13 13 14 12 13 13 13 13 13 14 12 13 13 13 14 12 13 13 13 14 12 13 13 14 12 13 13 14 12 13 13 13 14 14 12 13 14 14 14 14 14 14 14 14 14 14 14 14 14	0 0 116 23 170 116 36 84 0 0 0 0 0 12 12 17 24 1316 1217 691 8	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 111 53 2 0 1 6 83 159 119 163 137 138 190 157 173 173 173 173 173 173 173 173 173 17	5456 4843 31411 1865 1966 39993 249834 48703 48703 57 140677 91846 62931 10279 14967 109177 1991 1991 1991 1991 1991 1991 1		325 323 328 490 1010 946 501 501 501 501 502 603 603 604 603 604 604 604 604 604 604 604 604 604 604	441 493 206 583 773 380 758 141
TEXAS OKLA OKLA KAMSAS KEBIJOAK KAMSAS KEBIJOAK KOL/WYO KEW MEX CAMPBEL CARSON HOOD POLK RILEY SAM HOU STEWART BENNING BLISS GURDON KNOX L. WOOD MCCLELN RUCKER SILL CCAD ANAD RRAD ANAD RRAD WATIONA UTAMINY ARIZONA CAL WIN RUCKER SILL CCAD ANAD RRAD WATIONA UTAMINY ARIZONA CAL WIN LEWIS ORD PRSIDIO HUACHUC	3 7199 36 6 1 1 8 1 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	20 31 77 4 0 179 496 1058 295 	2 1 8 0 0 0 0 0 19 33 32 26 6 0 32 22 24 5 7 7 7 7 24 5 5 7	1924 411 9330 282 282 7 364 29932 42669 99585 31721 47192 134464 2885 11162 10299 36171 26457 10	425 199 425 199 28 522 603 1994 1781 17390 1874 1313 1340 10 110 110 113 260 2143 266 2143 77 0 13 13 13 266 2143 13 27 13 27 14 14 15 17 17 17 17 17 17 17 17 17 17 17 17 17	7 10-6 45 2 2 0 1 1 4 6 4 1 2 7 1 1 8 1 1 5 1 5 1 1 1 1 1 4 6 1 1 1 1 1 1 1 1 1 1 1 1 1	1 5 29 30 9 32 30 13 13 12 2 13 14 9 15 14 14 17 17 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	0 0 1106 36 84 0 0 0 0 12 12 17 24 13 16 12 17 7 6 9 1 8 0 0	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 111 153 2 2 0 0 1 1 6 8 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5436 4843 31411 1865 1066 339 2598 2698 48793 48793 48793 48793 10279 10279 14901 41901 41901 2502 1993 1299 1299 1299 1299 1397 1491 1491 1491 1491 1491 1491 1491 14		325 323 328 490 1010 946 501 501 501 501 502 603 603 604 603 604 604 604 604 604 604 604 604 604 604	441 493 206 583 773 386 758 141 81
TEXAS ORLA ORLA KANSAS NEBIDAR KANSAS NEBIDAR KANSAS NEBIDAR KANSAS NEBIDAR KANSAS NEBIDAR MODO NEW MEX CAMPBE SAM MOU STEWART BENNING BLISS GURBON KNOX RUCKER SILL CCAD ANAD RRAD WATIONA CALIF OREGON WASHNINI LEWIS ORB PRSIBIO RR	3 7199 36 1 8 1 5963 2691 20090 2277 3 3144 1390 1663 3 789 2021 4089 47 2 2 3 4 4 7 2 3 3 4 4 7 2 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4	20 3 77 4 0 179 496 1058 295 - 370 0 1016 69 1016 69 60 63 64 65 65 67 67 67 67 67 67 67 67 67 68 68 68 68 68 68 68 68 68 68	2 1 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	1924 411 9330 282 282 7 364 29932 42669 99585 31721 47192 134464 2885 11162 10299 36171 26457 10	63 98 425 19 2 8 522 603 1904 5790 1781 (730 9 1874 1315 133 260 2143 110 133 266 2143 13 13 13 13 13 13 13 13 13 13 13 13 13	7 10-6 45 2 2 0 1 1 64 45 40 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5 29 30 9 32 36 6 73 13 6 6 74 74 12 13 13 13 13 14 12 13 13 13 13 13 14 12 13 13 13 14 12 13 13 13 14 12 13 13 14 12 13 13 14 12 13 13 13 14 14 12 13 14 14 14 14 14 14 14 14 14 14 14 14 14	0 titl 186 23 170 116 36 84 84 84 84 83 170 170 170 170 170 170 170 170 170 170	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 111 53 2 0 1 6 83 159 119 163 137 138 190 157 173 173 173 173 173 173 173 173 173 17	5456 4843 31411 1865 1966 39993 249834 48703 48703 57 140677 91846 62931 10279 14967 109177 1991 1991 1991 1991 1991 1991 1		325 323 328 490 1010 946 501 501 501 501 502 603 603 604 603 604 604 604 604 604 604 604 604 604 604	441 493 206 583 773 380 758 141

ALT. NO T	WO RUCKLOAI	•													
DESTINA- TION	HCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAD COST	RRAD LIMES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAD T/LOADS	SHAD COST	MILEAGE MI NCAD	RRAD	SHAD
MAINE NM/VER MASS COMM/RI NEW YORK FENN NJ/DEL	3 5 2074 8 3283 255 946	0 12 147 10 302 27 74	0 1 17 1 16 3	6 816 9349 589 17120 1165 3359	1 2 1 6 73	0 0 0 2	•	1 0 0 18 231 27	. ,;		1	24 26 20 1		1731 1625 1589 1521 1483 1208	3218 3040 3084 3022 2917 2739 2867
MB/DC VA/W.VA N. CARG OMIO MICH: INDIANA	27 32 2305 41 1182	1 116 174 26 161	0 14 21 3 19	59 6583 10970 1640 11364	3 7 	5 14 33 31	3	0 489 1736 3114 3357	3	, ;	:	1422 278	104 248 372 374 479	1173 997 1914 877 1025 731	2795 2686 2743 2410 2374 2236
ILL. WISC MINN IOWA BRAGG DEVENS	1619 15 17 610 46392 970	190 36 26 73 1140 170	22 4 3 9 101 20	17179 3351 2939 7931 39974 10711	7 9 8	1 20 19 16	0 2 2 0 2	\$8 1941 1856 0 1495 2762	i 2	11		2404	746 793 1658 958 430	645 692 920 643 1020 1379	2050 2073 1937 2742 2760 3067
ORUM MCCOY MEADE SHERION SELVOIR OIX	1310 399 3803 4 1652	110 32 94 0 139	13 4 11 0 16	6587 3255 3971 7 6217 6693	2	:		1 9	1 2 3 1	1	1	31 3039 1772 111	331 903 8 69 672 125	1415 - 952 1163 - 831 1162 1327	2824 1997 2796 1790 2793 2867
EUSTIS LEE TOAD LEAD	4622 411 35 13467	164 92 16 293	19 11 1 24	9061 4920 395 3943	2 2 46 AMAD	14 AHAD	ANAG	176 1771 1671	:	;	•	11 14 <b>0</b> 6	267 241 127	1158 1111 1335 1167	2895 2840 2811 2712
FLORIBA			•	,	LIMES	WE IGHT	T/LOADS	COST					936	ILEAGE 309	2507
GEORGIA S. CARO ALABAMA MISS TENN	83 1 4 329	33 2 2 111	13	4494 155 227 12393	804 1041 2341 345	231 113 171 94	23 11 17	7219 5271 5608 4347 275	1	;	•	720	714 574 871 1938	91 308 113 303 214	2401 2622 2327 2002 2226
KENT JACKSON GAMPBLL STEWART BENNING	10 6 5963 3144 1390	1 11 179 462 355	0 1 21 55 42	89 854 16298 41256 34165	220 682 29332 42437 23074	102 103 603 1874	10 60 130 101	164 4794 26475 63254 35775	5	. 0	0	41	541 574 757 733	410 313 269 334	2389 2627 2242 2648 2413
GORDON KNOX: MCCLELN MUCKER ANAD	4339 4493	1016	120 0 0 0 66	18 81077 9 47063	13 40976 2885 31362 28457	6 1645 133 260 2143	114 13	257 57824 3373 10143 36371	13	84 0 20	7	15813	649 603 773 948	232 365 6 199	2556 2343 2321 2408 2321
-	-				RRAD LINES	RRAD	RRAD T/LOADS	RRAD						RRAD SILEAGE	
MISSOUR ARKANS LOUISMA TEXAS OKLA KANSAS NEB/DAK	2 190 76 3 719 36 1	29 20 5 77 4	1 9 0	941 3226 2436 804 10118 464	1 26 1 24 1 5 24 41 1 9 3 3 6 2 8 2	61 94 421	1 10 1 10 1 2	2346 1094 3010 4932 19092 1162 214	1	1	•	100	927 1049 1201 6 1563 1300 1109	374 159 325 353 288 490 1010	1847 1964 2111 1691 1563 1743
COL/WYO NEW MEX CARSON HOOD POLK RILEY SAM HOU BLISS	2691 2691 20990 2272 3271 3	295 370 0	0 59 125 35 44	441 77126 155394 38047 44963 20 41591	364 87 42669 99583 31721 47192 13	1904 1904 1701 1701	1 6 127 402 118 125	780 4445 143282 222135 41320 66144 497 118672	1 29 50 9 32	186 23 170	0 9 16 2 14	13284 27236 3856 24486	0 1521 0 1276 0 1174 1642	960 166 849 326 210 533 447 807	1170 1074 1258 1682 1978 1680 1660
SILL CCAD RRAD	351 789 2021 4089	69 132 23 434	16 3	7160 18084 1199 78824	184 10299 36171	110 351 264	1 12 1 37 5 28	6550 16711 17374 18	2 2 13 6	0	0	3( 6)	2 934 9 1384 7 1679	462 317 330 0	1933 1546 1805 1790
MRT / IDA UTAH / NV AR I ZONA CAL I F OREGON WASHNTN I RW I N	47 2 14 1594	516	61	13928 1469 1856 114696	14 3 1 1 1 1 1 1 1	1 13 1 13 46 374		14130 1145 1 2306 0 4367 54320	24 9 15 1437 14 12 13735	12 63 193 17 24 1316	1 5 14 1 2 107	1196: 79: 323: 984: 126: 213: 4679:	2305 2306 2306 2689 2760 2712 2553	1695 1572 1182 1843 2146 2218 1480	837 441 693 200 383 773 380
LEWIS ORD	2061 32 16 5	273 13 0 1	•	63571 3668 0 27 215 17973	4715 2414 6	121	13 6 1	61151 21241 0 1210 9	39956 19641 14 2 1 3810	691 8 0	116 103 1 0 0 34	92865 31605 336 15 25835	2800 2785 2222 2222	2231 1811 1856 1086 1843 1389	758 141 81 877 32 692
TOTAL	156483	11060	1251	1129114	503786	23899	1657	1115197	10983		471 TOTAL (	36002(	5 2604337		÷

ALT. NO T	HAEE RUCKLOAI			•											
DESTINA- TION	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAD COST	RRAD LINES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAD T/LOADS	SHAD	MILEAGE M	RRAD	SHAD
MAINE MAIVER MASS COMM/RI	3 5 2074	0 12 147 10	0 1 17	816 9349 589	1 2 1	•	•	3				24 26	543 418 381 313	1751 1625 1589 1521 1481	3218 3040 3084 3672 2917
PENN PENN NJ/DEL ND/DC	3283 255 946 27	302 27 74	36 3 9	17120 1165 1359 59	73	2	0	18 231 -2 0	3 31	11	0	202		1208 1291 1173	2739 2867 2795
VA/W.VA N. CARO ONIO	12 23 <b>0</b> 3 41	116 174 26	14 21 3	4583 10970 1648	1 7 5	5 16 33	, , ,	489 1736 3114	3	,	1	1422	372 374	997 1014 877	2688 2743 2410
ILL.	1162 13 1615	161 190	19 6 22	17175	15	31 1 20		3157 6 56	.;	1		278 3 123	552 748	1025 731 645 892	2374 2238 2030 2073
WISC MINN IONA BRAGG	15 17 610 46392	36 26 73 1140	101	3151 2939 7931 39974	54	19	2 2 6 1	1941 1856 0 1695	2	•	•	2404	1618	920 683 1020	1912 2742 2768
DEVENS DRUM MCCOY	, 974 1310 599	170 110 32	20 13 4	10713 6587 3255	1 2	10	-	2762	1	18	•	31 3039	331	1579 1415 952	3067 2824 1997 2798
MEADE SHERIDH BELVOIR DIX	3803 6 1652 1340	94 0 139 147	11 0 16 17	3971 7 6217 6693	4	•			3 1	•	•	1772	672 125	1163 631 1162 1327	1790 2793 2867
EUST 15 LEE TOAD	4427 417 33	164 92 16	19 11 1	9061 4920 393	2	•	:	176	•	•	•	. 11		1156	2895 2840 2811
LEAD	13467	293	24	3943	ANAD LINES	ANAB WEIGHT	AMAB T/LOADS	MAB COST	•	,	'	1400	47	ANAB MILEAGE	2712
FLORIBA GEORGIA	d	9 55	•	4676	13	24 231	23	1125 7219	1	5	•	926	936 714 574	309 91 308	2507 2401 2622
S. CARD ALABAMA MISS TENN	1 4 329 3	2 2 111	13	135 227 12393	104; 2341 345 40	113 171 <b>94</b> 7	17	9271 9 <b>608</b> 4347 275	;	:	:		871 1934	113 303 214	2327 2082 2226
KENT JACKSON CAMPÓLL	10 6 5763	1 17 179	1 21	89 854 16298	226 682 29112	102 103	60	164 4794 36475	5	•	•	41		410 313 269	2369 2627 2242 2446
STEWART BENNING GORDON KNOK	3144 1390 2 6339	462 355 6 1016	•	41256 34165 18 81077	42437 23074 13 40976	1874 1315 6 1643	101	63254 35775 257 57824	50 13	116	10	22321 15813	649	334 148 232 365	2433 2556 2343
MCCLELN RUCKER ANAD	6893	660		47063	2889 11362 28457	133	13 26	3373 10143 36371	13	0 28	0 2	5142	773	199 Q	2321 2408 2321
	٠				RRAD LINES	rrad Weight	RRAD T/LQADS	RRAD COST					-	RRAD MILEAGE	
MISSOUR ARKAMS LOUISMA TEXAS	199 76	21 20	3	941 3226 2436 804	124 124 1524 411 9336	32 6 61	3 7	2348 1094 3016 4932 19092	•		•	100	927 1849 1201 6 1563 1300	374 159 325 353 284	1847 1904 2111 1691 1563
OKLA KANSAS NEB/QAK HUOD	719 34 1 20990	4		155394	201	1	2	1162 106 222135	10	184	16	27230	11 <b>09</b> 1344	490 (016 326	1743 1528 1682
POLK RILEY SAM HOU	2272 3271	295 370	35 44 0	18047 44961 20	31721 47192 12	1756	125	41320 46144 497 118672	9 32 13	170	2 14 3	3850 24880 395	0 1174 1642	210 533 447 807	1978 1680 1660 1109
BLISS L. WUOD SILL CCAO	1663 351 789 2021	132	16	41591 7160 18084 3599	384 10294 36171	) 116 351	12	6350 16711 17374	2 2 13	0	0		2 934 0 1384 7 1679	462 317 530	1933 1546 1805
RRAD	4069		75	78824	TEAD LINES	TEAD	TEAD T/LQADS	TEAD	•	, a	0	,	9 1208	TEAD MILEAGE	! 790
COL/WYO					544 87		1 1	482	1	•	•		0 1614	535 - 623	1170
CARSON DAK	2691	496	i 5 <b>9</b>	77126	:	; 1	127 0		TEAD	) 111 TEAD	TEAD	1328	4 1639	588 914 RRAD	1258
MNT/IDA					RRAD LINES		T/LOADS		LINES 24	WEIGHT	T/LOADS	COST 733		MILEAGE 1695	MILEAGE 444
UTAH/NV ARIZONA HUACHUC TEAD	1 <b>0</b>			27 17973	1	11	1		9 15 2 5610	43		321 439 13 832	8 2300 3 2222		677 861
						•			SHAD LINES	SHAD WE IGHT	SHAD T/LOADS	SHAD COST			SHAD MILEAGE
CALIF OREGON WASHNIN I RWIN LEWIS ORB FRSIDIO SAAD	47 34 1334 2081 31	31 27	; ; ; 61 32	3668	174 471	374 374 3 29	0 4 1 40 1 31	54320 61151 21241	1437 14 12 13735 39954 19441 14	17 24 1 1316 1 1217 1 691	1 2 107 116 105	984 126 213 4679 9286 3160 33	6 2749 S 2712 7 2553 S 2696 S 2880	2144 2214 1460 2231 1811 1856	563 773 380 758 141
TOTAL	1 1 6 6 8 1		1951	1129114	30378	23899	1856	1012426	10941	4946	474	33697	6		

TOTAL COST 2518510 TOTAL LINES 741440

ALT. NO F	OUR RUCKLOAI	•					•								
DESTINA-	NCAD LINES	NCAD WEIGHT	NCAD T/LOADS	NCAD COST	RRAD LIMES	RRAD WEIGHT	RRAD T/LOADS	RRAD COST	SHAD LINES	SHAD WEIGHT	SHAG T/LOADS	SHAD	MILEAGE I	RRAD	HILEAGE SHAD
MAINE	3	•	•	•	1	•	•	•			•		543 418	1751 1625	3218 3040
MM/VER MASS	2074	147	17	9349	2	•	•	•					381	1589	3084
CONNIRI NEW YORK	3283	3 <b>0</b> 2	36	189 17120	i	:	•	18	. 3	- 11	1	2426		1521	3022 2917
PENN NJ/DEL	253 946	27 74	3	1165 3359	73	2		231	31	1	•	201	100	1208 1291	2739 2867
MD/DC	27	1	ò	59				•	_	_	_		104	1173	2795
VA/W.VA N. CARO	37 73 <b>0</b> 5	11 <b>6</b> 174	14 21	6583 1 <b>09</b> 70	3 7	16	9	1736	3	7	1	1422	372	997 1 <b>0</b> 14	2688 2743
BRAGG DEVENS	46392 970	1140	101 20	39974 10713	34	16 18	2 2	1695 2782	•	- ''	1	2464		1620	2768 1067
DRUM	1310	110	13	6587 3971	•		i	•	i		•	31 1772	331	1415	28 24 2798
BELVOIS	1652	139	16	6217	-	-	ě	•	3	_	•		125	1162	2793
DIX EUSTIS	1340 4522	147 154	17 19	6693 9061	2	:		•	1	•	•	•	134 267	1327 1158	2867 2895
LEE	411	92	ij	4920 195	2	2	:	176			•	13	241 127	1111	2846 2811
LEAD	13467	293	24	3943	46	14	ĭ	1671	ŀ	;	ĭ	1405		1167	2712
	LBOA LINES	LEDA WEIGHT	LBDA T/LOADS	LBDA COST									LODA MILEAGE		
0410	41 1162	26 161	3 16	1015 8243	. 5	15	3	3114 3357			_	278	200 374	877 1025	2410 2374
MICH INDIANA	17	•	•	2	15	31	3	•	;	:	•	3	192	731	2238
ILL. WISC	1615	190 36	19	9574 22 <b>0</b> 2	7	1 20		38 1941	1 2	1	•	123		645 892	2050 2073
MINN	17	26 75	3	2008 5376	i	19	2	1856	•	•	•		784 662	920 603	1912 2742
MCCOA	599	12	3	2264	2	•	•	ï	2	10	2	3039	649	952	1997
SMERION KENT	220	•		43	10			16	1	,	•	111	398 40	831 715	17 <b>96</b> 23 <b>89</b>
CAMPOLL KNOX	29112 4 <b>09</b> 7 <b>6</b>	603 1645	· / 114	24845 28041	5943 8339	179 1016	16 107	10695 57978	13	84	•	15813		505 648	2242 2343
	NCAO L INES	NCAD WEIGHT	MCAD T/LOADS	NCAO COST	LINES	AMAD WE IGHT	AMAD T/LOADS	COST					NCAD MILEAGE	ANAD MILEAGE	
FLORIDA GEORGIA	1	53	:	4676	13 804	24 231	2 23	1125 7219		5	۰	926	936 714	309 91	2507 2401
S. CARO	ij	1	•	155	1041	113	11	5271	•	•	•	,	574	308	2622
ALABAMA NISS	329	111	13	227 12393	2341 345	171 94	. 9	· 5606 4347	1	•		6	871 1038	113 303	2327 2082
TENN JACKSON	1	11	<b>a</b>	854	40 682	102	10	275 4794	1	•	٥	•	711 574	214 313	2226 2627
STEWART BENNING	3144 1390	462 355	55 42	41256 34165	42437 23074	1874		56713 28612	10	116	10	22529	733	334 148	2648 2433
GORDON	. , , , ,	"	7	18	13	6	1	257	,,	***	14.	44349	649	232	2556
<b>WCCLELM</b>	,	•		•	2885 11142	133 266	13 16	2279 10143	•				773 948	199	2321 2408
ANAD	6893	660	66	47063	28457	2143	146	23628	13	28	2	5342	773	0	2321
	-				RRAD LIMES	RRAD WEIGHT	RRAD T/LOADS	COST						RRAD MILEAGE	
HISSOUR ARKANS	190			941 3226	126			2348 1094		•			927 1049	374 159	1847
LOUISNA	76	20	2	2416	1524	61	, 7	3010					1201	325	2111
TEXAS OKLA	719	77		10118	9330			4932 19092	,	,	6	104	15 <b>63</b> 1300	353 288	1691
KANSAS NEB/DAK	36 1	4	_		282			1182					1109	1010	
HOUD FOLK	20990		125	155394	99585	5790	402	222135	50		16	27230	1521	326	1682
RILEY	3271	370	44	18047 44963	31721 471 <b>92</b>			41320 66144	32	23 170	14	3850 24880		210 533	1978 1680
SAM HOU BLISS	1663		•	20 41591	13 31464			497 118672	13	36	1	3957	1642 1975	447 807	1 <b>6 6 0</b> 1 <b>7 0 9</b>
L. #000	351 789	69		7160	584	110	12	6550	2	0	•	1	2 934	462	1933
CCAD	2021	23	, ,	18084 3599	10299 36171		28	16711	13		•	10 67		317 110	1546 1805
RRAD	4089	636	75	78824	10 TEAD	TEAD	0 TEAD	18 TEAD	6	•	0	,19	1206	0 TEAD	1790
501 Imma		_			LINES	WE I GHT	TILOAOS	COST		_		_		MILEAGE	
COL/WYO NEW MEX CARSON	8 1 2691	•	•	441 7 7712 <b>6</b>	\$64 87 42669	1904	127	482 3599 81674	1 29	111	•	13284	1839	535 623 588	1170 1074 1258
DAK					· S	RRAD	RRAD	RRAD	TEAD	TEAD	TEAD	TEAD		914 RRAD	TEAD
MNT/1DA					LINES 14		T/LOADS	COST	LINES 24	WEIGHT 130	T/LQAOS	CQ\$T	2210	MILEAGE 1695	MILEAGE
UTAM/NV AR I ZONA				•	3	,	•	1145	9	12	t	320	2305	1572	37
HUACHUC	10			27	•	- 11	t	1210	2	•	•	4598	2222	1086	677 861
TEAD	507	76	11	17973	•		•	16	5810	441	34	\$535	1073	1389	,0
									SHAD	SHAD WEIGHT	SHAD T/LOADS	SMAD			SHAD MILEAGE
CAL IF OREGON	47			13928	•	13		2306	1437	193	16	9846 1266		1843 2146	200 303
WASHINTH	34		i i	1856		40	i ě	8167	12	24	2	2139	2712	2218	773
LEWIS	1554 2081	273	12	43571	174 471 <b>5</b>	291	31	5432 <b>0</b> 61151	13735	1316	167 116	46797 92863	2696	14 <b>80</b> 2231	386 758
0 <b>00</b> PR51010	. 12	1 1 5	2	3668	2414	123	13	21241	19641	691	105	31605	2880	1811	141
SAAD	5	•	•	215			•	•	i	i	. •			1843	32
		12114		1067720	447564	12844		1009113	10763	4940	474	133991			

44 7	-	 A 846	414	MODE.	TRUCKL	CAR

ALT. NO		31X	DE : NUCK	LUNU											
DESTINA-		NCAD	NCAO	MCAD	RRAD	RRAD	RRAD	RRAD	SHAD	SHAD	SHAD		MILEAGE		
TION	LINES	WE IGHT	T/LOADS	COST	LINES	WE I GHT	T/LOADS	COST	LINES	WE IGHT	TILOADS	COST	NCAD	RRAD	SHAD
MAINE	3	0	•		1	0	•	3					543	1751	
NH/YER	2974	12			,			•					416 381	1625	
MASS COMMIRS		10		589	í			•					373	1589	
NEW YORK		102			- 6	•		14		11	1	3430		1463	2917
PENN	255	27 74			73	2		231	31	ı	•	207		1206	
NJ/DEL MB/DC	94 <b>6</b> 27	<b>7</b>			•	•	•	2	•				133	1291 1173	
VA/W.VA	12	116		6583	3	5		489	3	7	1	1422	266	997	2688
N. CARG	2365	1140	101	19979		16		1736					372	1614	
ORAGG DEVENS	46392 970	170			54	16		2782	i	11	-	2404		1626	
DRUM	1310	110	i i i		•	• •	ě	•	j			31		1415	
MEADE	3865	94		3971	•	•	•	•	3	, .	1	1772		1103	
BELVOIR	1652 134 <b>0</b>	139 147	16 17	6217 6693	2	•	:	:	1	•	•		125	1162	
EUSTIS	4622	164	19	9661	ž	•		i	•	_	•		267	1150	
LEE	411	92	";	492 <b>0</b> 295	3	2	•	176		_			241	1111	
TOAD LEAD	53 134 <b>6</b> 7	. 293	24	3943	46	14	i	1671	i	• 7		11 14 <b>0</b> 5		1335	
						-			_		-				
	L <b>BDA</b> LINES	LBDA WEIGHT	LBDA T/LOADS	LBOA COST									LBDA MILEAGE		
	CIMES	WE 1 4011		COJI											
0110	41	26	3	1015	5	33	3	3114					200	877	
MICH	1182	161	16	6243	15	31	3	3357	3	!	•	278		1025	
INDIANA ILL.	1615	190	19	9574	7	,	•	18	;	<b>e</b> 1	:	123		711 645	2736
WISC	15	36	4	2202	•	20	1	1941	2	i	i	1	319	192	2073
MINN IOMA	17 619	26 75	3	2088 5376	•	19	2	1856					784	920	
MCCOY	599	32	;	2264	2	•	•	•	2	16	2	3031	662 649	683 952	
SHERIDA	•	•	•	4				-	ĭ	1	i	111		431	1790
KENT	220			83	10			76	_	_			40	715	
CAMPBLL KNOX	19332 4 <b>09</b> 76	403 1645	114	24 <b>6</b> 45 2 <b>89</b> 41	1963 8339	179	18 107	10695 57978	13	84	• 7	15813		503 648	
										•	•	.,		•••	
	NCAD LINES	NEAD WEIGHT	NCAB T/LOADS	NCAD COST	LINES	ANAD WEIGHT	ANAD T/LOADS	COST					NCAB MILEAGE	MILEAGE	
							1150000	COST					WILL ENGE	m. CEADE	
FLORIDA GEORGIA	1 83	0 53	•	4696	13	24		1125		_	_		936	309	
S. CARO	*;	"	•	155	1841	231 113	23 11	7219 5271	1	5	•	924	714 574	91 3 <b>08</b>	
ALABAMA	4	ž	ě	227	2341	171	17	5608					871	113	
16155	329	111	13	15363	345	94	•	4347	!	•	•	•		303	
TENN JACKSON	3	11	,	854	40 602	102	10	275 4794	1	•	•	•	711 574	214 313	
STEWART	3144	462	53	41256	42437	1874	130	16713					733	334	
BENNING	1390	155	42	34165	23074	1313	101	28612	10	116	10	22529	828	146	2433
GORDON MCCLELN	2	•	0	16	. 13 2885	,,,,	13	257 2220					649 773	232	
RUCKER	3	•	•	•	11362	260	26	10143	1	10		•		199	2321 2408
ANAO	6893	660	66	47063	28457	2143	146	23620	13	28	1	5342	773	0	2321
					RRAD	RRAD	RRAD	TRAD				•		RRAD	
					LINES	WEIGHT		COST						WII FAGE	
MISSOUR	- 2	,	1	741	126	45	5.	2348					927		
ARKANS	190	29	3		124	32	3	1094					1049	374 159	
LQUI SNA TEXAS	76 3	20 5	2	2436 804	1524	63		3010					1201	125	
OKLA	719	"	,	10118	411 9330	9 <b>8</b> 425	10	4932 19092	1	1	•	104		351	
HQUÐ	20990	1058	125	155394	99585	5790	402	222135	50	186	16	27230	1300	288 326	
POLK SAM HOU	2272	295	35	38947 20	31721	1781	118	41320	•	23	2	3850	1276	210	1978
BL (SS	1663	231	27	41591	13. 31464	1340	142	497 118672	13				1642	447	1640
L. WOUD	351	69		7160	584	110	12	6550	2	36	9	1952	1975	807 462	1109
SILL	7 <b>89</b> 2021	1 3 2 2 3	16	18084	10299	353	37	16711	2	0	0	30	1384	317	1546
RRAD	4089	616	75	1599 78824	36171	266	28	17374	13	9	9	67		530	1805
						_	•	• •	•	•	0	19	1208	۰	1790
					PUDA	PUDA	PUDA T/LUADS	PUDA COST						PUDA	
					F 1.44 3	-e :un!	· · LUAUS							HILEAGE	
COL /WYO	•	3	0	441	564		!	260	:	0	•	•	1614	126	1170
NEW MEX CARSON	2691	496	0 59	7712 <b>6</b>	87 42 <b>669</b>	12 1904	5 127	2255 34834	29		_		1839	259	1074
NES/DAK	1	0	ő	,,,,	7	.,,,,	146	144	29	111	•	13284	1639	36	1258
KANSAS	36		0	464	282	19	1	1220					1109	569 551	1528 1743
RILEY	3271	376	44	44963	47192	1750	1 2 5	74095	32	170	14	24880	1174	488	1680
					RRAD	RRAD	RRAD	RRAD	TEAD	TEAG	TEAD	TEAD		RRAD	TEAD
					LINES	WE I GHT	T/LGADS	COST	LINES	WE I GHT	TILOADS	COST			MILEAGE
MMT/IDA					14	87	,	14130	24	130	13	7332	2210	1695	
UTAH/NV					3	1	Ī	1149	•	12	'i	328	2210	1572	44 <b>6</b> 37
AR I ZUNA HUACHUC	10		_		1		•	!	15	63	•	4598	2100	1182	677
TEAD	507	76	,,,	27 17973	•	11	1	1210	2 5810	443	0 34	13	2222	1086	861
ILAU			• •		•	•	•				.,,	5535	2073	1389	•
TEAU	,,,								SHAD	SHAD	SHAD	SHAD			SHAD
16.00	,,,								LINES	WE IGHT	T/LOADS	COST			MILEAGE
	,,,														
CALIF	47	••	?	13928		13	!	2306	1437	193	16	1846	2689	1843	200
CAL IF	47 2		1	1469			•	•	14	17	i	1266	2769	2146	583
CAL 1F OREGON WASHINTN IRWIN	47 2 14 1554	5 3 316		1469 1856 114 <b>694</b>	3 174						-	1266 2135	2769 2712	2146 2218	583 773
CAL IF OREGON WASHITN IRWIN LEWIS	47 2 14 1554 2001	516 273	1 61 12	1469 1856 114696 63571	3 174 4715	40 174 291	0 4 40 31	8347 54316 61151	14 72 13735 39956	17 24 1316 1217	1 2 107 116	1266 2135 46797 92865	2769 2712 2353 2696	2146 2218 1480 2231	583 773 380 758
CAL 1F OREGON WASHINTN IRWIN	47 2 14 1554	5 3 316	1 1 61	1469 1856 114 <b>694</b>	3 174	40 374	4	#347 5432 <b>0</b>	14 72 13735 39956 19641	17 24 1316 1217 691	1 2 107 116 105	1266 2135 46797 92865 31605	2769 2712 2553 2696 2880	2146 2218 1480 2231 1811	583 773 380 798 141
CALIF OREGON WASHITN IRWIN LEWIS ORD	47 2 14 1554 2001	516 273	1 61 12	1469 1856 114696 63571	3 174 4715	40 174 291	0 4 40 31	8347 54316 61151	14 72 13735 39956	17 24 1316 1217	1 2 107 116	1266 2135 46797 92865	2769 2712 2553 2696 2886 2785	2146 2218 1480 2231 1811 1856	583 773 380 758 141 81
CALIF OREGON WASHNTN IRWIN LEWIS ORD PRSIDIG SAAD	47 2 14 1554 2001 32	6 8 516 273 15	1 61 32 2	1469 1856 114694 63571 3668	3 174 4715 2414	48 174 291 123	0 4 40 31 13	0 2367 54310 61151 21241	14 72 13735 39956 19641 14	17 24 1316 1217 691	1 2 107 116 105	1266 2135 46797 92865 11605 136	2749 2712 2513 2696 2886 2781 2689	2146 2218 1480 2231 1811	583 773 380 798 141
CALIF OREGON WASHNIN IRWIN LEWIS ORD PRSIDIO	47 2 14 154 2081 32	516 273 15	1 61 32 2	1469 1856 114696 43571 3668	3 174 4715	40 174 291	0 4 40 31 13	8347 34320 61131 21241	14 72 13735 39956 19641 14	17 24 1316 1217 691	1 2 107 116 105	1266 2135 46797 92865 31605	2769 2712 2553 2696 2886 2785	2146 2218 1480 2231 1811 1856	583 773 380 758 141 81

TOTAL COST 2370376
TOTAL LINES 741446

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ALT. NO 0	340	<b>4006</b> LE	SS THAN	TRUCKLD								
DESTINA- TION	NCAB LINES	MCAB WE IGHT	MCAD COST	RRAD LIMES	RRAD WEIGHT	COST	SHAD LINES	SHAD WEIGHT	SMAD COST	MILEAGE W	RRAD	IILEAGE SHAD
MAINE MI/VER	454 708	42 89	11529	42	2 7	1011	19		771 2451		1751	3218
MASS	194	13	3966	154	12	4476	46	3	1394	381	1589	1646 3684
COMMIRI MEW YORK	1133	161 126	31321 30656	97 445	10 27	3153 13003	147	7 19	2481 6878		1321	3022 2917
PENN	2518	210	42383	356	15	10107	62	7	2631	100	1206	2739
H)/DEL HD/DC	1115	114	18349	174	17	5239 4139	58 45	7	2594 19 <b>0</b> 5		1291 1175	2867 2795
VA/W.VA	1982	156	19692	197	40	7824	57	20	4694	288	997	2688
N. CARO S. CARO	265 411	13	3652 6535	189	41 42	765 <b>0</b> 71 <b>95</b>	12 56	16	4014 3677		1614	2743 2622
OHIO	1452	134	34131	217	38	7631	49	15	3599	374	877	2410
MICH INDIANA	1188	134	3374 33970	161 152	31 31	6266 537 <b>9</b>	52 58	10	2881 1151		1 <b>025</b> 731	2374 2238
ILL. WISC	37		1212	165	45	6502	45	10	2569	748	645	2050
MINN	1702	135 48	43910 12413	263 230	13 10	7807 7075	59 83	17	1971		192 720	2073 1932
AMDI	156	1	3052	69	10	1957	51	4	1684	958	683	2742
BRAGG DEVENS	388 579	28	4264 9641	1463	74 19	28492 5550	534 <b>66</b>	45	23556 2876		1020 7279	2768 3 <b>067</b>
DRUM	143	6	2197	145	10	3695	37	4	1430		1415	2624
MEADE	1816	98 176	39754 314 <b>09</b>	125 268	14	3637 6763	59 115	24 10	4789		1183	1957 2798
SHERION	842	106	26381	97	21	3760	50	7	1879		831	1790
BELVOIR	1050	105	29 19824	75 227	11 27	2663 7681	16 76	• •	1399		1162	2793
EUSTIS	92	•	1991	95	21	4108	63	í	2864		1158	2867 2895
JACKSON LEE	150 427	76	2046 12402	119	29 13	4891 1383	36 11	•	1452		163	2627
TOAR	1461	37	13488	38	';	2023	43	į	1222		1111 1 <b>325</b>	2840 2811
LEAD	347	1	744	495	21	9425	153	12	5164		1167	2712
FLORIDA	383	46	12260	1855	193	38396	79	12	3922		733	2507
GEORGIA ALABAMA	54 §	119	16135 23342	3525 23 <b>0</b> 7	273 222	72192 49501	110	41 25	9614 7226	714 871	641 541	24 <b>6</b> 1 2327
MISS	125	48	12354	2855	223	44328	105	22	5773		304	. 2082
TENN	299 162	31 21	1500	2033 482	137 1 <b>02</b>	35215 23115	64 14		1953		497	2226
MISSOUR	150	Ĭ9	9102	973	128	21349	44	;	2267	541 927	71 <b>5</b> 374	23 <b>89</b> 1847
ARKANS LOUISNA	190 390	29 72	7 <b>294</b> 1714 <b>6</b>	1314 2921	119 241	18278 47 <b>606</b>	41 98	17	1517	1049 1201	159	1904
TEXAS	447	54	16954	3076	174	42619	"		2899	1563	325 153	2111 1691
OKLA KANSAS	186 245	32 44	8102 10376	951	100	16822	125	16	4667	1300	288	1563
NES / DAK	137	51	8798	1292	118	26007 19650	59 48	•	2435 22 <b>6</b> 1	1109 1344	490 1010	1743
HEW MEX	133	20 8	5054 3 <b>69</b> 7	989 368	96 52	13509	34 27	11 26	2931 2949	1614	766	1170
CAMPBLL	139	i	1491	63	";	199	295	27	10326	757	505	1074 2242
CARSON HOOD	64 152	9	7620 1698	94	11	2630	678	135	30459	1639	149	1258
POLK	184	14	3665	100	2 40	721 6992	464 157	196	12216	1521 -	126 210	1682
RILEY SAM HOW	75 77	13	2974 3692	420 674	28 74	7472	471	82	21675	1174	333	1640
STEWART	195	22	3961	166	21	144 <b>87</b> 97 <b>0</b> 1	21 345	44	701 20074	1642 733	. 447 872	1 <b>660</b> 2 <b>648</b>
BENNING BLISS	7 2	1	184	32	1	447	239	35	11209	828	635	2433
GORDON	225	20	4 <b>8</b> 5845	17	, 2 90	410 26512	24 <b>6</b> 57	71	13098	1975 649	807 782	1109 2556
KNOX L. WOOD	588 122	26	10964	199	15	4067	271	50	14522	601	646	2343
MCCLELM	151	7 25	2865 5612	1525 232	175	33754 3315	123	13	1046	934 773	462 562	1933 2321
RUCKER	145	49	12488	220	7	2911	134	17	5732	948	626	2408
SILL	23	7	1328	57	10	1381	143	30 1.6	714Q 7596	1384	317 530	1846
ANAD	336	4	1325	33	0	190	412	78	22348	773	556	2321
RRAD	83	3	1152	1	•	•	407	50	15613	1208	0	1790
MNT/IDA UTAH/NV	161	24 28	7397 6891	129	32 17	6965 4269	913	139	10484	2210	1695	837
ARI ZONA	62	20	4253	189	20	5721	61 <b>6</b>	19 19	19753	2305 2300	1172	44 î 69 3
CAL IF OREGON	431 132	74 24	22250 7093	446	111	24999	2304	265	23961	2669	1443	12
WASHITH	70	17	4297	76 82	7 24	27 <b>66</b> 5328	1068	70 132	16001	27 <b>69</b> 271 <b>2</b>	2146 2218	583 773
IRWIN	27	•	113	1194	123	39673	70	10	1664	2553	1480	380
CERIZ	891	116	1310	33 77	5 10	15 <b>60</b> 3139	1160	17 81	47 <b>83</b> 128 <b>84</b>	2696 2889	2231 1611	758 141
FRS1910	81	14	4598	39		2036	458	45	5046	2785	1856	61
HUACHUC SAAD	135 116	11	4856 44 <b>06</b>	98 18	20 2	4055 712	982 379	70 63	20960 5001		1086	877 52
TEAD	2	•	43	182	43	12794	•	ĭ	167	2073	1389	692
TOTAL	15154			49445	,,,,							
·	33174	3414	465508	42435	3844	921555	18691	2490	391143			
							T	OTAL C	PST	2378206		

TOTAL COST 2378280
TOTAL LINES 96260
TOTAL WEIGHT 9763

ALT. NO ONE - IDEAL

DESTINA- TION	TOTAL LIMES	WE IGHT 5-TONS	NCAD LINES	NCAD WEIGHT	NCAB LINES	NCAD WEIGHT	NCAD LINES	NCAD WEIGHT	TOTAL LIMES	TOTAL WEIGHT	NCAD (	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE	2530	74	414	42	42		19	2	515	46	12843	541	1751	3218
MI/VER	3894	162	708	19	69	. 7	39		816	104	22902	414		3040
MASS COMM/RI	7 <b>929</b> 7 <b>0</b> 57	248 250	194	13 161	154 97	12	46	3 7	194 1279	28 178	1064 34961	381 311		30 <b>8</b> 4 3022
NEW YORK	18304	811	1460	126	445	37	147	19	2012	182	41670	261		2917
PENN	10813	391	281#	210	356	35	82	7	3256	252	49881	100		2739
N) /DEL MD/DC	15760	501 181	1115	36 114	174 138	17 14	58 45	7	1347 1284	110	22802 23068	133		2867 2795
VA/W. VA	7881	486	1962	156	197	40	17	20	2236	21 5	49618	286		2688
N. CARD	8250	352	265	•	189	41	52	16	506	66	13959	372		2743
S. CARD	6606	255	411	15	176	42	56	14	643	70	18039	574		2622
OHIO MICH	6644 4714	129 366	1452 128	136	217 161	36 31	49 52	15	1718 341	191 54	43753	174 479		241 <b>0</b> 2374
INDIANA	7723	348	1188	134	152	ii	58	ii	1398	176	41792			2238
ILL.	8478	496	37		165	45	45	10	247	60	11110	741		2050
WISC	7313 7387	354 432	1702	135	263 230	13 10	59 83	, 5 17	2024 638	171 96	\$4263 24472	791 1038		2073 1932
10WA	4320	134	136	7	- 69	iē	31	``4	276	20	7125	951		2742
BRAGE	68695	1633	386		1463	74	534	65	2385	146	46471	430		2768
DEVENS DEUM	11042 6657	346 179	575 143	28	151 145	19	66 37	7	792 325	54 19	15727	371 331		3067 2824
MCCOY	8774	247	1816	"	125	14	59	24	2000	136	49304	901		1997
MEADE	21254	446	1955	176	268	20	115	10	2338	206	37159			2798
SHER 1 DH	6617	186	843	106	97	21	50 36	•	749	133	32089 2371	672		1790 2793
BELVOIR	5952 10811	249 396	1060	105	75 227	11 27	74	;	114	14 140	25911	122		2867
EUSTIS	7514	288	72	•	95	21	63	i	250	37	6429	261	1156	2895
JACKSON	\$191	215	150	.4	119	29	36	•	303	36	1948			2627
TOAB	5179 6321	278 156	427 14 <b>6</b> 1	76 37	114 58	13	35 43	4	576 1562	93 47	1 5 <b>9 4</b> 4 1 5 <b>6 9 8</b>			2846 2811
LEAD	18022	404	347	- i	495	21	193	12	995	34	8378			2712
*********				*****	******			*****						
SUBTOT	122594	11110	15888	2133	6726	760	2350	337				417.45	1144.45	2636.23
			READ	RRAD	RRAD	RRAD	RRAD	RRAD	RRAD	READ	RRAD			•
FLORIDA	6873	260	153	46	1655	139	79	12	2267	191	51311	930	733	2507
GEORGIA	14573	192	541	60	1525	275	110	41	4176	374	92127	714		2401
ALABAMA MISS	17818 14792	1229	644 125	119	2367 2855	222 223	131 105	25 22	3042 3285	366 293	733 <b>00</b> 54 <b>636</b>			2327 2082
TENN	6320	274	299	31	2033	137	64	- ;	2376	173	42946			
KENT	5161	165	162	23	882	107	34	•	1078	128	28733			
MISSOUR ARKAMS	5831	348	150	59	973	128	44	•	1167	197	29674			1847 1904
LOUISNA	3438 11125	259 588	190	29 72	1514 2921	119 241	41 98	17	1745 34 <b>09</b>	152 330	22248 60398			
TEXAS	10859	492	447	54	307 Ó	174	93		3610	217	54828	1561	353	1691
OKLA	17048	753	186	32	931	100	125	16	1262	149	23643			
KANSAS HEB/DAK	4077 3894	286	245 137	44 51	1292 632	116	59 48	•	1396	170 138	34785 29801	1101		1743 1528
COL IMAO	1038	186	103	20	989	98	14	11	1126	122	32029			1176
NEW WEX	-2596	160	133		56E	52	27	26	728	16	19803	1831	766	
CAMPBLL	42744	1039	139	7	63 74	, ,	295 678	27 135	497 836	. 32	8493 29875			2242
H000	135934	8274	132	ź	100	';	144	196	1116	155	19922			1258 1682
POLK	47373	3308	184	16	903	40	357	61	1444	117	19741		\$14	1978
AILEY SAM HOU	4582 <b>4</b> 42 <b>6</b> 7	3003 144	75 77	11 15	- 420 676	28 74	471 21	82	966 774	122	23726 17084			
STEWART	43030	3102	195	22	440	21	145	cá.	1200	112	30403			2648
BENNING	30217	2078	7	1	32	1	239	35	278	36	7426	821	635	2433
GORDON	45 <b>696</b> 9378	2749 214	223	0 20	17 1241	2 90	240 57	71	259	73	11271	1971		1109
KNOX	61560	3857	111	28	199	15	271	4 30	1523 1058	114 93	33117 23262			255 <b>6</b> 2343
L. WOOD	9647	549	122	7	1525	175	123	13	1770	196	38430	934	462	
MCCLELN RUCKER	5125	212	151	25	232	10	36	. 2	419	37	8740			2321
SILL	18536	535 691	145 23	49	220 57	10	134	17 30	699 223	73 47	16539			2408 1546
CCAB	44392	348	2	o	9	ō	374	16	385	16	5392	1679	530	1805
ANAO	18914	3280	336	4	33	9	412	78	781	12	17763	771		2321
RRAD	1366	1090	£3				409	50	493	52	•	1 50 6	• •	1790
SUBTOT	841675	45213	7035	914	32849	2640	6561	1079				1128.66	340.212	1947.76
			SHAD	SHAD	SHAD	SHAD	SHAD	SHAD	SHAD	SHAD	SHAD			
MMT/IDA	9439	649	161											
UTAH/NV	7437 525 <b>9</b>	279	119	24 28	1 2 9 9 5	32 17	933 516	139	1223 830	195 134	41605 22664	2210 2301		837 441
AR I ZONA	5438	254	62	20	189	20	617	11	166	136	27616	2300	1182	693
CALIF	18295	1147	431	74 24	446 78	111	2304	265	3181	450	37453			52
WASHINTN	6637 4813	210 334	132	17	82	7 24	936 1068	70 132	1166 1220	102	24294 37613	2769 2717		583 773
1 RW 194	22213	3948	4	•	1194	123	70	10	1268	133	25376	2553	1480	340
LEWIS	39658	2577	27	4	33	. 5	228	17	288	27	6812	2696		758
ORD FRSIDIO	3374 <b>0</b> 3 <b>9</b> 24	1442	891 81	116	11 19	10	1166	\$1 45	2128 578	208 69	28617 7226	2885 2785		141
HUACHUC	7291	165	133	12	74	20	962	76	1215	103	28717			
SAAD	5417	148	116	11	18	2	179	65	513	78	4307	2641	1843	52
TEAD		778	2	•	383	43	,	1	393	44	10106	2073	1389	692
	6789													
SUBTOT	6789 19 <del>09</del> 33	12046	2231	347	2860	424	9780	1083				2529.40	1719.38	489.231
SUBTOT	190933			347				1083				1356.9	1133.69	
SUBTOT		12046	2231 35154		2060 42435	424 3 <b>86</b> 4	9780		TOTAL (	COST	2034438		1133.69	
SUBTOT	190933			347				1083	TOTAL (		2034438	1356.9	1133.69	
SUBTOT	190933			347				1083				1356.9	1133.69	

ALT. NO 1	MO LESS	THAN TE	HUCKLOAD									
DESTINA- TION	NCAD LINES	MÇAÐ WE I GHT	COST	RRAD LIMES	RRAD - WEIGHT	RRAD COST	SHAD LINES	SHAD WEIGHT	COST	NCAD	RRAD	SHAD
MAINE NH/VER	454 7 <b>68</b>	42 89	11529	42 69	2 7	1011	19	2	777 2451	543 418	1751	1214
MASS	194	13	3900	154	12	4476	46	1	1398	381	1589	3084
COMMITTEE YORK	1133 14 <b>40</b>	161 126	31321 30656	97	16 37	3153 13 <b>003</b>	49 147	7 19	2483 6878	113 287	1521	3622 2917
PENN	2618	210	42303	356	"	10307	82	7	2632	100	1208	2729
NI /BEL	1113	86	18349	174 13 <b>6</b>	17	1239	58	1	2596	133	1291	2867 2793
MD/DC VA/W.VA	1161	114 156	19747	197	14	4139 7824	45 57	5 20	1909	104 268	1173	2684
N. CARD	263	•	1412	169	41	7850	51	16	4014	372	1014	2743
MICH	1452	138	34131 3374	217 161	38 31	7631 6266	49 52	15	3599 2882	374 479	877 1023	241 <b>0</b> 2374
INDIANA	1188	134	33578	152	31	1379	58	11	3155	552	731	2238
ILL. WISC	17 <b>02</b>	133	1212	145 243	49 11	6502 7807	45	10	25 <b>69</b> 1971	74 <b>8</b> 7 <b>93</b>	445 492	1054 1073
AG 1 0004	125	48	12413	230	30	7075	83	17	4489	1058	920	1932
I GWA BRAGG	136	7	3052 42 <b>6</b> 4	1463	10 74	1957 28692	51 534	45	1686 23556	958 430	1020	2742 17 <b>68</b>
DEVENS	\$75	26	9641	151	19	3550	44	7	2870	371	1579	3067
MCCOY	143	,,	2197 19714	145	10 14	3693 3637	37 39	24	145 <b>8</b> 47 <b>89</b>	331 303	1415 952	2824 1997
MEADE	1955	176	31409	268	29	6765	111	10	4238	49	1183	1796
SHERION	842	106	26381	97	21	3760	50	•	1879	672	831	1790
BEFAGIE	1040	195	29 1 <b>9824</b>	75 227	1 1 27	2463 7681	36 76	4 7	1399 2947	125 134	1162	2793 1867
EUSTIS	92	•	1991	95	21	4188	63		2848	267	1158	2895
TOAD	427 14 <b>6</b> 1	76 37	12402	114. 58	13	3585 2023	35 43	4 2	15 <b>07</b> 1222	241 127	1111	284 <b>0</b> 2811
LEAD	347	ï	744	495	21	9425	153	12	5166	47	1167	2712
				ANAB	AKAD	AMAD					ANAG	
				LINES	WE IGHT	COST					MILEAGE	
FLORIDA	353	44	12260	1855	133	30014	19	12	3922	936	309	2507
GEORGIA S. CARO	541 17 <b>6</b>	44 42	16135 7349	3525 411	273 15	39861 4414	116 56	41 14	9014 3677	714 574	91 398	2401 2522
ALABAMA	604	119	29342	2307	222	31483	191	25	7226	871	112	2927
MISS Temp	325 299	48 31	12354 2600	2855 2033	223 137	48 <b>993</b> 2827 <b>3</b>	105	22 5	5778 1955	1 <b>038</b> 711	3 <b>6</b> 3 214	2062 2226
KENT	162	21	4869	102	102	20255	34	i	1765	541	410	2389
JACKSON CAMPBLL	119 139	29 2	3022 1491	150	4	14 <b>29</b> 7 <b>46</b>	36 295	27	1452	\$74 757	313 269	2627 2242
STEWART	195	33	3961	***	zi	7136	345	68	20074	733	334	2648
BENNING GORDON	7 225	1 20	184 5845	1241	1	285 18409	239	35	112 <b>09</b> 1874	828 649	148	2433
												2556
KNOX	588	28	19964	199	13	3526	271	50	14522		363	
MCCLELM	588 151	28 25	10964	199 232	15	3 <b>526</b> 777	271 36	50 2	14523	603 773	363	2343 2321
KNOX	588	28	10964	199	13	3526	271	50	14522	663	363	2343 2321 2408
MCCLELN MCCLELN	588 151 345	28 25 49	10964 5612 12488	199 232 220	19 10 7	3 <b>526</b> 777 2 <b>0</b> 34	271 36 134	50 2 17	14522 1046 5732	603 773 948	363 6 199	2343 2321
MCCLELN MCCLELN	588 151 345	28 25 49	10964 5612 12488	199 232 220 33	15 10 7	3526 777 2034 0	271 36 134	50 2 17	14522 1046 5732	403 773 948 773	363 6 199	2343 2321 2408
MCCLELN MCCLELN	588 151 345	28 25 49	10964 5612 12488	199 232 220 33 RRAD	13 10 7 0	3526 777 2054 0	271 36 134 412	50 2 17 76	14322 1046 5732 22346	663 773 948 773	363 4 199 0 RRAD MILEAGE	2343 2321 2404 2321
RNOX MCCLELM RUGKER ANAD M1-13-GUR ARKAMS	388 131 343 336 336	28 25 49 4	10964 3612 12488 3323 	199 232 220 33 RRAD LIMES 373 1514	13 10 7 6 RRAD WEIGHT 128 119	3526 777 2054 9 RRAD COST 21349 18278	271 96 134 412 44 44	30 2 17 76	14522 1046 5732 22346 2363 1517	927 1049	363 6 199 8 RRAD MILEAGE 374 159	2343 2321 2408 2321 1847
MEGLELN RUCKER ANAD	588 151 345 345 336	28 25 49 4	10944 5612 12488 3325	199 232 220 33 RRAD LIMES 373 1514	13 10 7 6 RRAD WEIGHT 128 119	3526 777 2054 9 8RAD COST 21349	271 36 134 412 44 41	50 2 17 70 9 5	14522 1046 5732 22346 2346 2343 1517 4934	927 1049	363 6 199 0 RRAD MILEAGE 374 159 323	2343 2321 2408 2321 1847 1964 2111
MISSOUR ARIANS LOUISMA TEXAS ORLA	588 151 345 336 150 150 477	28 25 49 4 59 29 72 54	10964 5612 12488 3325 9102 7294 17146 10954 8102	199 292 220 33 RRAD LINES 973 1514 2921 3070 951	15 16 7 6 RRAD WEIGHT 128 119 201 174 108	3526 777 2054 8 8RAD COST 21349 19278 47604 42019 16822	271 36 134 412 44 41 98 93	90 2 17 76 9 5 17 8	14522 1046 5732 22348 2348 2343 1517 4954 2699	927 1049 1201 1363 1300	363 6 199 6 RRAD MILEAGR 159 323 353 288	2343 2321 2408 2321 1847 - 1904 2111 1691 1363
MUCLELN RUCKER ANAD MISSOUR ARKANS LOUISMA TEXAS	588 151 345 336 196 190 190 447 186 245	28 25 49 4 59 29 72 54 52	9102 7294 9102 7294 17146 16954 18102 10376	199 232 220 33 RRAD LIMES 973 1514 2921 3070 951 1292	18 10 7 0 RRAB WEIGHT 128 119 201 174 106 118	3526 777 2054 8RAD COST 21349 18278 47886 42619 16822 26867	271 36 134 412 44 41 98 93 125	90 2 17 76 9 9 5 17 8	14523 1046 5732 22348 2348 2343 1517 4914 2899 2493	927 1049 1201 1563 1109	363 6 199 9 RRAD MILEAGE 159 323 353 353 288 490	2343 2321 2408 2321 1847 1904 2111 1691 1363 1743
KMOX MCGLELN MUCKER AMAD M153GUR ARKAMS LOU! SNA TEXAS OKLA KANSAS MES! GAK COL, 1970	588 151 343 336 196 190 190 447 186 243 137	28 25 49 4 59 29 72 54	9964 9612 1248 3325 9102 7294 17146 19954 8102 10376 8798	199 292 220 33 RRAD LINES 973 1514 2921 3070 951	15 16 7 6 RRAD WEIGHT 128 119 201 174 108	3526 777 2054 8 8RAD COST 21349 19278 47604 42019 16822	271 36 134 412 44 41 98 93	90 2 17 76 9 5 17 8	14522 1046 5732 22348 2348 2343 1517 4954 2699	927 1049 1201 1363 1300	363 6 199 6 RRAD MILEAGR 159 323 353 288	2343 2321 2408 2321 1847 - 1904 2111 1691 1363
KNOX MCCLELN MCGLELN RUGKER ANAD M1550UR ARKANS LOUISNA TEXAS OKLA KANSAS MES/GAK COL/UVO NEW MEX	588 151 343 336 196 190 447 186 245 137 163 133	28 25 49 4 59 29 72 54 52 44 51 20 8	19964 5612 12488 3325 9102 7294 17146 16954 8102 10376 8796 964 964 964	199 232 226 33 RRAD LIMES 573 1514 2921 3070 951 1292 432 989 368	18 10 7 6 RRAB WEIGHT 128 119 241 174 100 118 78 90 52	3526 777 2054 9 8RAD COST 21349 18278 47406 42019 14622 26067 19630 25739	271 36 134 412 44 46 98 93 125 59 48 34 27	90 2 17 76 9 5 17 7 8 18 8 9 11 26	14522 1046 5732 22346 2346 1517 4914 2899 4467 2435 2261 2931	927 1049 1291 1291 1363 1390 1109 1344 1614	363 6 199 0 RRAD MILEAGE 374 159 323 353 490 1010 960 766	2343 2321 2408 2321 1847 1904 2111 1691 1743 1528 1174 1674
KNOX MCCLELN MCGKER ANAD M1550UR ARKANS LOU! SNA TEXAS OKLA KANSAS ME8 / DAK COL / WYO NEW MEX CARSON MOOD	588 151 345 336 196 190 447 186 245 137 101 133 64	28 25 49 4 59 72 54 32 44 51 20 8	10964 5612 12488 3325 	199 232 220 33 RRAD LIMES 973 1514 2921 3070 951 1292 432 989	15 10 7 0 RRAB WEIGHT 128 119 201 174 100 118 78	3526 777 2054 9 8RAD COST 21349 18278 47804 42019 16822 26067 19856 25739	271 36 134 412 44 46 93 125 59 48	90 2 17 76 9 5 17 6 18 8 9	14522 1046 5732 22346 2346 1517 4954 4467 2435 2435 261	927 1049 1291 1091 1109 1304 1109	363 6 199 0 RRAD MILEAGE 374 159 323 323 490 1010 960	2343 2321 2408 2321 1847 1964 2111 1591 1363 1743 1528
KNOX MCCLELN MCCLELN RUGKER ANAD  M15SOUR ARKANS LOUISMA TEXAS OKLA KANSAS ME8/DAK COL/WYO MOOD FOLK	588 131 343 336 130 190 390 447 186 245 137 103 144 152	28 23 49 4 59 29 7 7 7 8 4 9 20 8 9 2	19964 5612 12488 3325 	199 232 232 33 RRAD LIMES 973 1514 1921 1921 1292 432 989 168 94 1 109	18 10 7 0 RRAB WEIGHY 12B 119 241 140 128 78 90 92 11 24	3526 777 2054 0 MRAD COST 21349 18278 47069 14022 24007 19650 25759 13309 2430 721 8992	271 36 134 412 44 41 - 93 125 58 48 34 77 678 864	90 217 70 9 9 5 10 8 9 11 26 135 106	14522 1046 5732 22346 2363 1517 4994 4667 2435 1261 2949 30459 30459	927 1948 173 948 173 927 1949 1291 1563 1399 1344 1614 1839 1639 1521 1276	365 6 199 0 RRAD MILEAGE 374 159 325 235 290 490 1010 940 744 849 326	2343 2321 2408 2321 1847 1904 2111 1691 1363 1528 1170 1258 1470 1258 1470
KNOX MCCLELN MCGKER ANAD M1550UR ARKANS LOU! SNA TEXAS OKLA KANSAS ME8 / DAK COL / WYO NEW MEX CARSON MOOD	588 151 345 336 196 190 447 186 245 137 101 133 64	28 25 49 4 59 72 54 32 44 51 20 8	10964 5612 12488 3325 	199 232 220 33 RRAB LIMES 973 1514 2921 3070 3070 322 432 289 289 364 100 903 420	13 10 10 10 10 10 10 10 10 10 10 10 10 10	3526 777 2034 8 8 8RAB COST 21349 18278 47864 42019 16422 26407 19650 25739 13309 2630 721 8992 7472	271 36 134 412 44 41 98 93 125 59 48 34 27 678 864 357	99 9 11 26 81 126 61 82 8	14322 1046 5732 22346 2363 1517 4934 2879 4467 2435 1261 2031 2949 32218 17202 21675	927 1049 1291 1363 1300 1109 1344 1839 1521 1274	365 6 199 0 RRAG MILEAGE 374 159 325 323 208 490 1010 940 744 249 220 220	2343 2321 2408 2321 1847 1964 2111 1691 1743 1778 1674 1674 1978 1682
KMOX MCGLELN MCGLELN MLSEGE AMAD  MLSEGUR ARKAMS LOUISNA TEXAS OKLA KANSAS MEB!DAK COL!PVO NEW MEX CARSON HOOD FOLK RILEY	588 151 345 336 190 190 477 186 245 137 162 152 164 75	28 28 49 4 4 59 72 54 44 51 20 8 9 2 16 6 11	19964 5612 12488 3323 9102 7294 17146 16954 8102 16376 864 3697 2676 3693 2976 3693 2976	199 232 232 33 RRAD LIMES 973 1514 1921 1921 1292 432 989 168 94 1 109	13 10 7 0 RRAD WEIGHT 128 119 241 140 123 78 90 52 240 25 74 240 25 74 22 40 25 74 22 25 25 74 22 25 25 25 25 25 25 25 25 25 25 25 25	3526 777 2054 0 MRAD COST 21349 18278 47069 14022 24007 19658 25759 13369 2430 721 8992	271 36 134 412 44 41 - 93 125 58 48 34 77 678 864	90 217 70 9 9 5 10 8 9 11 26 135 106	14522 1046 5732 22346 2363 1517 4994 4667 2435 1261 2949 30459 30459	927 1948 173 948 173 927 1949 1291 1563 1399 1344 1614 1839 1639 1521 1276	365 6 199 0 RRAD MILEAGE 374 159 325 235 290 490 1010 940 744 849 326	2343 2321 2408 2321 1847 1904 2111 1691 1363 1528 1170 1258 1470 1258 1470
MINOX MICLELN MICKER ANAD  MISSOUR ARKANS LOUISMA TEXAS ORLA KANSAS MES/DAK COL/WYO NEW MEX CARSON HOUD FOLK RILEY SAM HOU SLISS L. WOOD	588 151 345 336 159 199 947 786 245 137 101 133 64 152 184 77 77 77 77 77 77 77 77 77 77 77 77 77	28 29 49 4 4 59 72 9 9 20 8 9 9 21 11 11 15 0 7	19964 3612 12488 3323 3102 7294 17146 16954 8102 10376 8790 3094 3097 2620 1693 3693 48 2643 48 2643 48 2643 2643 2643 2643 2643 2643 2643 2643	199 232 232 33 RRAD LIMES 973 1514 2921 1070 951 1292 432 949 940 940 940 440 676 17	12 10 10 10 10 10 10 10 10 10 10 10 10 10	3526 777 2054 8 8RAD COST 21349 18278 47806 47806 47806 9799 19690 25730 25730 25730 7472 14407 410 33754	271 36 334 472 444 461 98 93 125 59 48 34 257 678 864 257 471 21 240	50 2 17 76 9 5 17 6 14 6 135 106 67 82 71	14822 1046 5732 22348 2363 1517 4934 2879 4657 2453 1261 2949 32218 17202 21672 701 13098 4463	927 1049 1281 1281 1281 1281 1390 1390 1444 1614 1839 1639 1639 1642 1744 1642 1973 934	365 6 6 199 0 8 RRAG MILEAGE 139 323 323 323 323 329 490 1010 946 746 210 523 447 847	2343 2321 2408 2321 1847 1944 2111 1543 1528 1170 1474 1258 1474 1474 1474 1474 1474 1474 1474 147
KMOX MCGLELN MCGLELN MLSSOUR ARKANS LOUISNA TEXAS ORLA KANSAS MEB JOAK COL /UVO NEW MEX CARSON HOOD FOLK RILEY SAM MOU BLISS L. WOOD SILL CCAO	588 131 345 336 159 447 199 447 199 447 199 199 199 199 199 199 199 199 199 19	28 28 49 4 4 39 29 72 34 44 51 15 11 13 7 7	10964 5612 12488 3325 	199 232 220 33 RRAB LIMES 973 1514 2921 3676 368 943 420 676 77 1525 57	13 10 10 10 10 10 10 10 10 10 10 10 10 10	3526 777 2034 8 8 87AB COST 21349 18278 47805 42819 16822 28627 19590 25739 13309 25739 13309 25739 14407 4108 33754 1341 1441	271 36 412 44 44 46 93 93 57 48 48 34 27 64 35 7 47 11 21 21 21 21 21 21 21 21 21 21 21 21	50 2 177 76 9 5 17 6 18 8 9 11 26 135 106 61 42 27	14522 1046 5732 22346 2363 1517 4994 2697 4667 2435 2261 2031 2049 3449 3249 32218 17202 21675 773	927 1049 1281 1583 1300 1109 1344 1614 1639 1521 1276 1174 1649	365 6 199 6 RRAG MILEAGE 374 159 325 353 280 490 1610 940 764 764 210 210 210 210 210 210 210 210 210 210	2343 2321 2408 2321 1847 1904 2111 1691 1743 1528 1170 1074 1682 1978 1682 1978 1680 1680 1680
KMOX MCGLELN MCGLELN MLSSGUR ANAD  MLSSGUR ANKANS LOUISMA TEXAS OKLA KANSAS MCB/GAK COL/WYO MEW MEX CARSON MOOD FOLK RILEY SAM MOU BLISS L. WOOD SILL CCAD RRAD	588 151 345 336 198 198 199 477 186 245 137 148 152 177 77 77 77 72 2	28 28 49 4 4 39 72 9 12 44 8 9 2 16 11 15 0 7 7	19964 5612 12488 3323 9102 7294 17146 10954 8102 10376 8394 3697 3693 2976 3693 2976 3693 2976	199 232 230 33 RRAD LINES 973 1514 2921 3070 951 1292 232 289 96 100 676 676 676 676 676 676 676 676	12 10 7 0 RRAB WEIGHT 128 119 241 173 90 522 49 28 744 2 2 175 175 175 175 175 175 175 175 175 175	3526 777 2034 9 8RAB COST 21349 18278 47804 42019 16622 28407 19530 7219 8992 7472 14407 410 33754	271 36 36 412 412 44 44 46 98 93 125 59 48 34 27 478 471 21 21 240 123 143	99 517 76 106 8 99 117 26 135 106 61 82 2 71 13	14322 1046 5732 22346 2363 1517 4994 2899 4667 2435 2261 2949 38459 32218 17202 21675 7140	927 1049 1281 1563 1300 1300 1304 1403 1563 1521 1274 1675 1975 1974	365 6 199 6 NRAG MILEAGE 374 159 325 353 288 490 1616 940 744 249 326 210 333 447 227 442 217	2343 2321 2400 2321 1847 1904 2111 1563 1743 1578 1170 1462 1978 1660 1109 1913 1754
MINT/IDA	588 151 345 336 190 190 407 186 245 137 102 133 64 75 77 2 2 22 2 2 2 2 2 2 2 3 1 2 4 7 7 7 7 8 7 8 7 7 7 8 7 8 7 8 7 8 7 8	28 29 49 4 4 59 72 9 9 20 16 11 11 7 7 7	19964 5612 12488 3323 7294 17146 16954 8102 10376 8798 3654 3692 48 2264 1328 1328 1328 1328 1328 1328 1328 1328	199 232 232 33 RRAD LINES 973 1514 2921 1070 951 1292 289 944 420 676 676 17 (525 57 91	12 10 17 0 0 READ WEIGHT 128 119 241 174 140 178 179 90 52 2 44 2 2 175 170 0 0 0 178 178 179 179 179 179 179 179 179 179 179 179	3526 777 2054 8 8057 21349 18278 47808 47808 47809 18278 47808 19590 25739 13369 2630 7472 14407 416 33739 14407 416 31739 1410 31739 14407 416 31739 416 31739 416 31739 416 31739 416 31739 416 31739 416 31739 416 31739 41	271 364 412 444 461 98 93 125 59 48 34 34 357 471 240 143 143 144 409	50 2 177 76 9 5 17 6 8 9 11 26 6 135 10 6 6 7 13 10 16 10 10 10 10 10 10 10 10 10 10 10 10 10	14822 1046 5732 22348 2363 1517 4934 2879 4467 2467 2261 2949 36459 32218 17202 21675 701 13098 4465 7140 7596 12613	937 948 773 948 773 1049 1201 1201 1201 1309 1404 1614 1639 1639 1521 1276 1174 1642 1973 934 1642 1973 934 1642 1973 934 1208	365 6 6 199 0 RRAG MILEAGE 159 323 353 200 490 1010 960 744 210 533 447 849 326 317 550 0	2343 2321 2408 2321 1847 1944 2111 1363 1743 1528 1170 1460 1109 1109 1109 1109 1109 1109 1109 11
KMOX MCGLELN MCGLELN MLSSGUR ANAD  MLSSGUR ANKANS LOUISMA TEXAS OKLA KANSAS MCB/GAK COL/WYO MEW MEX CARSON MOOD FOLK RILEY SAM MOU BLISS L. WOOD SILL CCAD RRAD	588 131 343 336 138 190 390 477 186 245 137 163 152 122 23 2	28 28 49 4 4 39 72 54 43 8 8 9 2 2 16 6 11 15 7 7	19964 5612 12488 3323 9102 7294 17146 18954 8102 1893 3644 3697 2620 1898 3643 2976 3693 2976 3693 1152 1328 1331 1152 7397 8897	199 232 230 33 RRAD LINES 973 1514 2921 3070 1292 989 168 903 420 676 17 1525 97 1	12 10 7 0 RRAB WEIGHT 128 119 241 174 100 112 241 174 100 252 28 74 74 75 76 77 100 77 100 77 120 77	3526 777 2034 9 8RAD COST 21349 18278 4706 42019 16822 26067 19450 25739 7211 8392 7472 14407 410 33754 1341 0	271 36 34 412 44 44 46 98 93 125 59 48 34 27 64 27 471 21 21 21 24 40 123 143 143 143 144 149	50 2 177 76 9 9 5 17, 8 8 8 9 11, 26 61, 106 61, 106 6	14322 1046 5732 22346 2363 1517 4994 2899 4667 2435 2261 2949 30439 32218 17202 21675 7140 7596 15613	927 1049 1281 1563 1300 1300 1304 1614 1639 1521 1274 1675 1324 1679 1200 2305	365 6 199 8 RRAG MILEAGE 374 159 325 353 288 490 1616 249 326 210 333 447 227 442 210 317 317 317 317 317 317 317 317 317 317	2343 2321 2400 2321 1847 1904 2111 1563 1773 1578 1672 1978 1680 1109 1913 1756 1803 1790 1803 1790 837
MINON MICCELN MICKER ANAD  MISSOUR ARKANS LOUISMA TEXAS ORLA KANSAS MES/SAK COL/PYO FOLR FILEY SAM MOU SLISS L. WOOD SILL CCAO RRAD MIT/IDA UTAH/NY ARIZONA CALIF	588 151 345 336 198 199 199 197 186 265 137 183 144 152 22 2 2 2 2 2 2 2 2 3 1 1 1 1 1 1 1 1 1	28 29 49 4 4 39 72 9 72 16 11 15 0 7 7 7 7 0 2 2 2 2 2 2 2 2 3 2 2 3 2 2 3 2 3 2 3	19964 5612 12488 3323 7294 17146 10954 8102 10376 8102 10376 3063 2976 3063 2976 142 2861 1328 1132 1132 1132 7397 6091 4233 22233	199 232 232 33 RRAD LINES 973 1514 2921 3070 951 1292 329 944 100 903 420 676 676 17 1525 57 97 1129 1129 1129 1129 1129 1129 1129	128 100 170 0 RRAM WEIGHT 128 119 241 174 160 218 78 90 52 22 11 2 40 2 11 2 41 2 11 2 41 17 17 17 17 18 19 2 11 17 17 17 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	3526 777 2034 9 8RAD COST 21349 18278 47006 42019 14022 25009 25739 7319 1999 7417 1407 1407 1317 1407 1317 1407 1321 1407 1321 1407 1321 1407 1407 1407 1407 1407 1407 1407 140	271 364 364 412 444 464 98 93 125 588 48 34 37 678 121 143 143 143 143 143 143 143 143 143 14	99 99 99 99 99 99 99 99 99 99 99 99 99	14822 1046 5732 22346 2363 1517 4994 2899 4667 2455 2261 2949 30459 32216 17202 21675 7140 7396 4465 7140 7396 4465 7140 7396 7467 7467 7467 7467 7467 7467 7467 74	927 948 773 948 773 1049 1201 1201 1301 1309 1404 1614 1614 1619 1629 1521 174 1642 1973 934 1384 1675 1208 2305 2305 2305	365 6 69 0 9 0 8 RRAO MILEAGE 159 325 353 353 328 490 1010 940 744 220 333 3447 849 220 333 347 849 210 333 347 849 210 317 317 317 317 317 317 317 317 317 317	2343 2321 2400 2321 1847 1964 2111 1691 1563 1778 1678 1678 1678 1678 1678 1678 1678
MINON MICCELN MICKER ANAD  MISSOUR ANKANS LOUISMA TEXAS OKLA KANSAS MEB/GAK COL/WYO HEW MEN HOOD FOLK RILEY SAM HOU BL/SS L. WOOD SILL CCAD KRAD MIT/IDA UTAH/MV ARIZOMA CALIF OREGON	588 1313 343 336 190 390 447 186 245 137 161 152 122 23 2 2 122 23 161 119 62 431	28 24 49 4 4 59 72 72 73 20 8 9 9 9 16 11 11 15 0 0 7 7 7	19964 5612 12488 3323 9102 7294 17146 10954 8102 10376 8054 3697 2676 3692 1698 276 3692 1798 113 1152 7397 6293 22230 7093	199 232 232 33 RRAD LINES 973 1514 2921 3676 951 1292 989 1686 903 420 676 177 1525 97 1	12 10 10 10 10 10 10 10 10 10 10 10 10 10	3526 777 2034 9 8RAD COST 21349 18278 47004 42019 10622 26007 19450 25739 721 18992 7472 1447 416 33754 1341 1441 0 6063 4269 5721 26999	271 364 412 412 444 441 98 93 123 548 34 27 67 471 21 21 21 21 21 21 21 21 21 21 21 21 21	50 2 177 76 9 5 177 8 8 8 9 117 265 135 106 6 61 61 13 13 10 16 16 16 17 19 19 19 19 19 19 19 19 19 19 19 19 19	14322 1046 5732 22346 2363 1517 4994 2467 2435 2261 2031 2049 3449 3449 3449 3449 3449 3449 3449 3	927 1049 1201 1303 1304 1304 1304 1614 1619 1621 1276 1174 1642 1973 934 1521 1276 1679 1208 2305 2300 2689 2769	365 6 199 0 RRAG 374 1570 325 323 280 490 1410 210 210 210 210 210 210 210 210 210 2	2343 2321 2408 2321 1847 1964 2111 1691 1743 1528 1170 1674 1682 1978 1682 1978 1683 1790 837 441 693 533
MINON MICCLELN MICCLELN MICCLELN MICCLELN MICCLELN MICCLELN MICCLEN MI	588 151 345 336 190 190 190 190 197 186 157 177 183 133 144 152 23 2 2 43 119 62 43 113 2 43 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 113 113 113 113 113 113 113 113	28 28 49 4 4 39 72 9 20 16 11 15 0 7 7 7 0 2 2 2 2 2 4 4 2 1 1 1 1 1 1 2 1 2 1 2 1	19964 5612 12488 3323 9102 7294 17146 10954 8102 10376 3054 3057 2620 1693 2976 3997 488 2976 4897 48	199 232 232 33 RRAD LINES 973 1514 1921 3070 951 1292 989 168 100 90 17 1525 7 9 1525 17 17 17 17 17 17 17 17 17 17 17 17 17	128 129 128 129 128 129 129 129 129 129 129 129 129 129 129	3526 777 2034 9 8RAB COST 21349 18278 47004 42019 1622 28007 19509 26739 73199 7472 14407 410 33754 1347 1347 0 6053 4269 5729 2429 2429 2429 2429 2429 2429 2429 2	271 364 412 444 441 98 98 125 59 48 34 27 471 240 123 174 409 93 616 677 2306 616 677	99 517 76 8 99 517 8 16 8 99 11 26 135 106 61 82 2 71 13 30 16 50 139 89 99 265 70 132	14322 1046 5732 22346 2334 1517 4934 2899 4467 2435 2261 2949 30459 32218 17202 21675 7394 4463 7596 13613 30484 15753 19846 13753 19846 13031 18001 13098	927 1049 1281 1563 1390 1390 1390 1491 1614 1639 1521 1274 1679 1292 2305 2305 2305 2307 2769 2769 2712 2853	365 6 199 6 NRAGE 159 325 325 325 328 490 1616 940 744 220 333 447 207 462 317 570 0 769 1572 1182 1182 1182 1182 1182 1182 1182	2343 2321 2400 2321 1847 1964 2111 1691 1563 1778 1678 1678 1678 1678 1678 1678 1678
MINON MICCLELM MICKER AMAD  MISSOUR ARKAMS LOUISMA TEXAS ORLA KANSAS MESION MOUS FOLK FILEY SAM MOU SLISS LISS LISS LISS LISS LISS LISS LI	588 151 345 336 198 198 199 197 186 245 137 161 133 243 161 119 62 431 132 23 24 24 24 24 24 24 24 24 24 24 24 24 24	28 29 49 4 4 59 72 8 9 9 9 20 16 11 11 15 0 7 7 7 24 28 29 74 24 24 26 27 27 28 29 49 49 49 49 49 49 49 49 49 49 49 49 49	19964 3612 12488 3323 7294 17146 16954 8102 10376 8798 3697 2620 1482 133 1152 7397 6897 4283 1152 7397 6897 4223 72230 7093 7113	199 232 232 33 RRAD LIMES 973 1514 2921 13070 951 1292 432 949 140 177 177 179 179 189 149 149 149 149 149 149 149 149 149 14	128 10 0 0 RRAM WEIGHT 128 119 241 174 144 175 175 175 175 175 175 175 175 175 175	3526 777 2034 8 8057 21349 18278 47806 47806 47806 97399 13309 2630 26739 13407 410 35739 14407 410 35739 14407 410 35739 14407 410 35739 12409 2720 2720 2720 2720 2720 2720 2720 27	271 364 372 442 444 98 98 93 125 93 125 93 44 237 471 21 240 143 240 143 240 143 143 143 143 143 143 143 143 143 143	9 9 5 17 76 18 19 19 19 19 19 19 19 19 19 19 19 19 19	14822 1046 5732 22348 2363 1517 4934 2467 2467 2261 2949 32458 17262 2167 701 13098 4463 15613 30484 15753 1586 2941 14961 149	937 948 773 948 773 1049 1201 1201 1201 1300 1404 1614 1639 1639 1639 1639 1642 1973 934 1642 1973 1246 1672 2305 2305 2305 2305 2305 2305 2305 230	365 6 6 199 0 8 RRAG MILEAGE 139 323 333 230 490 1010 940 7464 210 533 447 807 117 570 0 7492 117 2116 1182 1182 1183 2218 1218	2343 2321 2408 2321 1847 1944 2111 1363 1528 1170 1474 1258 1474 1258 1474 1493 1493 1493 1593 1790 837 441 693 52 53 53 773 388
MINOX MICCLELM MICKER ANAD  MISSOUR ARKAMS LOUISMA TEXAS ORLA RANSAS MEM JOAN MOUD FOLK FLEY SAM MOU FLEY SAM MOU FLEY SAM MOU FLIS CCAO RRAD MNT/IDA UTAH/NV ARIZONA CALIF OREGON WASHWITH IRWIS ORE	588 151 345 336 190 190 190 190 197 186 157 177 183 133 144 152 23 2 2 43 119 62 43 113 2 43 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 2 44 113 113 113 113 113 113 113 113 113	28 28 49 4 4 39 72 9 20 16 11 15 0 7 7 7 0 2 2 2 2 2 4 4 2 1 1 1 1 1 1 2 1 2 1 2 1	19964 5612 12488 3323 9102 7294 17146 10954 8102 10376 3054 3057 2620 1693 2976 3997 488 2976 4897 48	199 232 232 33 RRAD LINES 973 1514 1921 3070 951 1292 989 168 100 90 17 1525 7 9 1525 17 17 17 17 17 17 17 17 17 17 17 17 17	128 129 128 129 128 129 129 129 129 129 129 129 129 129 129	3526 777 2034 9 8RAB COST 21349 18278 47004 42019 1622 28007 19509 26739 73199 7472 14407 410 33754 1347 1347 0 6053 4269 5729 2429 2429 2429 2429 2429 2429 2429 2	271 364 412 444 441 98 98 125 59 48 34 27 471 240 123 174 409 93 616 677 2306 616 677	99 517 76 8 99 517 8 16 8 99 11 26 135 106 61 82 2 71 13 30 16 50 139 89 99 265 70 132	14322 1046 5732 22346 2334 1517 4934 2899 4467 2435 2261 2949 30459 32218 17202 21675 7394 4463 7596 13613 30484 15753 19846 13753 19846 13031 18001 13098	927 948 773 948 773 1049 1281 1281 1393 1394 1614 1614 1614 174 1675 1276 174 1675 1208 2305 2305 2305 2305 2305 2305 2305 2305	365 6 6 199 0 8 199 0 8 199 0 199 0	2343 2321 2406 2321 1847 1904 2111 1563 1773 1578 1672 1978 1680 1109 1913 1756 1803 1790 837 441 693 52 583 773 388
MINON MICCLELN MICCLELN MICCLELN MICCLELN MICCLELN MICCLELN MICCLELN MICCLELN ANAD  MICCLELN ANAD  ARKANS ORLA FENAS MICCLE FORM MICCLE FORM ORD MICCLE FRES ORD	588 151 345 336 190 390 407 186 245 137 103 144 75 77 77 2 122 23 23 161 119 62 431 132 70 44 77 77 77 77 77 77 77 77 77 77 77 77	28 25 49 4 4 59 72 20 44 51 20 16 11 11 13 0 7 7 7 7 2 2 2 2 2 2 2 4 4 4 4 1 1 1 1 1 1 1 1 1	19964 5612 12488 3323 9102 7294 17146 10954 8102 10976 8798 3069 2976 3069 2976 1328 1328 1328 1328 1328 1328 1328 1338 1489 4293 4293 7093 4293 7093 4293 7094 7095 7	199 232 232 33 RRAD LINES 973 1514 2921 3070 951 1292 232 989 368 94 420 676 17 1525 17 1525 17 17 1525 17 17 1525 17 17 17 1525 17 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	128 100 128 119 241 174 140 128 129 129 129 129 129 129 129 129 129 129	3526 777 2054 8 805T 21349 18278 47808 47808 47808 25739 13369 2630 7472 1407 1341 1341 1440 1341 1440 1249 2572 2499 2709 2709 2709 2709 2709 2709 2709 27	271 364 422 44 467 988 983 125 599 48 34 34 357 678 143 143 143 143 143 143 143 143 143 143	99 99 95 70 132 145 768 145 768 145 768 155 76	14822 1046 5732 22348 2363 1517 4994 2899 4467 2491 22161 2949 30459 32218 17202 21675 7140 7596 13613 30484 19753 19446 23961 18001 30398 44782 12898 14899 1489	927 948 773 948 773 1049 1201 1201 1301 1304 1639 1639 1521 174 1642 1973 934 1384 1384 1384 1298 2305 2305 2305 2305 2305 2305 2305 2305	365 6 6 199 0 NRAO MILEAGE 159 323 323 329 499 1010 980 764 849 326 317 5:0 0 7695 1572 1182 2146 2246 2251 1843 2246 2251 1843 2246 2251 1843 2246 2251 1845 2251 1855 1055	2343 2321 2486 2321 1847 1964 2111 1363 1778 1458 1478 1466 1466 1466 1466 1466 1479 257 441 693 52 53 53 779 441 693 52 53 777
MINOX MICCLELM MICKER ANAD  MISSOUR ARKAMS LOUISMA TEXAS ORLA RANSAS MEM JOAN MOUD FOLK FLEY SAM MOU FLEY SAM MOU FLEY SAM MOU FLIS CCAO RRAD MNT/IDA UTAH/NV ARIZONA CALIF OREGON WASHWITH IRWIS ORE	588 151 345 336 190 190 190 190 190 190 190 190 190 190	28 28 49 4 4 59 72 54 44 51 15 5 7 7 7 7 0 2 2 24 28 20 7 4 11 15 15 4 4 4 11 11 15 16 17 17 17 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	19964 5612 12488 3323 9102 7294 17146 16954 8102 10376 8054 3697 2620 1698 3643 2976 3692 113 1152 7397 4293 2220 7093 4297 113 1310 4619 4619	199 232 232 33 RRAD LIMES 973 1514 2921 3970 951 1292 432 944 767 17 1525 57 11 129 94 420 420 420 420 420 420 420 420 420 42	128 10 0 0 RRAM WEIGHT 128 119 241 174 140 112 241 174 140 122 175 110 0 0 0 122 117 224 123 123 120 124 125 125 126 125 126 126 126 126 126 126 126 126 126 126	3526 777 2054 8 8RAD COST 21349 18278 47806 47806 97399 25390 73999 25390 7472 14407 4407 4407 45730 997 7472 14407 1381 1381 1407 4965 42699 9721 24999 1739 173	271 364 134 412 44 41 98 98 128 128 128 128 129 121 141 141 141 142 143 144 144 144 144 144 144 144 144 144	\$6 2 17 76 17 5 17 10 10 10 10 10 10 10 10 10 10 10 10 10	14822 1046 5732 22348 2363 1517 4934 2453 1261 2949 38459 38459 38258 7701 13098 4465 7396 13613 30484 15753 1586 23961 18001 30394 4783 12804	927 1049 1201 1300 1100 1100 1100 1100 1100 1100	365 6 6 199	2343 2321 2408 2321 1847 1994 2111 1363 1528 1179 1674 1292 1478 1460 11093 1790 637 441 693 52 533 5773 380 641
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MINON MICCELN MICKER ANAD MISSOUR ARKANS LOUISMA TEXAS ORLA KANSAS MES/SAK COL/WYO FOLK FILEY SAM MOU SLISS L. WOOD SILL CCAD RRAD MITAH/NV ARIZONA MITAH/NV ARIZONA CALIF OREGON WASMITH I RWIN LEWIS ORB PRSIBIO HUACHUC SAAB TEAD	588 151 345 336 190 190 477 786 265 133 64 152 104 115 121 122 23 2 431 132 70 47 77 77 77 2 122 2 2 43 1 13 13 13 13 13 13 13 13 13 13 13 13	28 25 49 4 4 32 72 9 15 11 13 10 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	19964 5612 12488 3323 9102 7294 17146 18954 8102 10376 3043 3044 3	299 232 232 33 RRAD LINES 973 1514 2921 3070 951 1292 989 440 676 676 17 1525 57 91 1292 1892 1893 1894 1943 17 17 1525 17 17 17 17 17 17 17 17 17 17 17 17 17	RRAB WEIGHT 128 119 241 174 166 128 28 28 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 18 29 29 17 29 18 29 29 18 29 29 29 18 29 29 29 29 29 29 29 29 29 29 29 29 29	3526 777 2034 9 8RAD COST 21349 18278 4706 42019 1402 25739 19399 2639 7417 1407 1407 1307 1407 1307 1407 1209 25739 1407 1407 1407 1307 1407 1307 1407 1307 1407 1307 1407 1307 1407 1307 1407 1307 1407 1407 1407 1407 1407 1407 1407 14	271 364 412 444 461 98 98 343 347 678 864 347 678 864 143 377 973 143 143 143 143 143 143 143 143 143 14	\$0 2 2 177 76 9 5 17 6 18 9 11 26 133 106 61 82 2 71 13 10 16 50 11 12 10 11 11 12 10 11 11 12 10 11 11 11 11 11 11 11 11 11 11 11 11	14322 1046 5732 22346 2363 1517 4934 2899 4667 2435 2261 2931 2949 34459 32216 17202 21675 7140 7596 1596 1596 1596 1596 465 1596 1596 1596 1596 1596 1696 1696 16	927 948 773 948 773 1049 1281 1563 1390 1639 1521 1274 1642 1973 1241 1679 1208 2305 2300 2489 2769 2769 2769 2785 2389	365 6 199 6 199 8 RRAG MILEAGE 159 325 353 288 490 1616 940 744 220 333 447 207 442 210 333 447 1572 1182 1182 1182 1182 1182 1182 1182 11	2343 2321 2406 2321 1847 1904 2111 1563 1743 1528 1176 1622 1978 1680 1109 1913 1756 1803 1790 837 7790 837 773 388 141 693 52 52 52 52 52 52 61 61 61 61 61 61 61 61 61 61 61 61 61
MINON MICCELN MICKER ANAD MISSOUR ARKANS LOUISMA TEXAS ORLA KANSAS MES/SAK COL/WYO FOLK FILEY SAM MOU SLISS L. WOOD SILL CCAD RRAD MITAH/NV ARIZONA MITAH/NV ARIZONA CALIF OREGON WASMITH I RWIN LEWIS ORB PRSIBIO HUACHUC SAAB TEAD	588 151 345 336 190 190 477 786 265 133 64 152 104 115 121 122 23 2 431 132 70 47 77 77 77 2 122 2 2 43 1 13 13 13 13 13 13 13 13 13 13 13 13	28 25 49 4 4 32 72 9 15 11 13 10 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	19964 5612 12488 3323 9102 7294 17146 18954 8102 10376 3043 3044 3	299 232 232 33 RRAD LINES 973 1514 2921 3070 951 1292 989 440 676 676 17 1525 57 91 1292 1892 1893 1894 1943 17 17 1525 17 17 17 17 17 17 17 17 17 17 17 17 17	RRAB WEIGHT 128 119 241 174 166 128 28 28 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 17 29 18 29 29 17 29 18 29 29 18 29 29 29 18 29 29 29 29 29 29 29 29 29 29 29 29 29	3526 777 2034 9 8RAD COST 21349 18278 4706 42019 1402 25739 19399 2639 7417 1407 1407 1307 1407 1307 1407 1209 25739 1407 1407 1407 1307 1407 1307 1407 1307 1407 1307 1407 1307 1407 1307 1407 1307 1407 1407 1407 1407 1407 1407 1407 14	271 364 422 444 98 98 3125 59 48 34 34 37 678 844 357 671 240 142 143 143 143 143 143 143 143 144 166 176 186 186 186 186 186 186 186 186 186 18	50 2 2 177 76 9 9 5 17 6 8 9 11 10 11 12 11 13 10 16 6 13 13 10 16 13 13 10 16 13 13 10 16 13 13 10 10 10 10 10 10 10 10 10 10 10 10 10	14822 1046 5732 22348 2363 1517 4994 2899 4467 2251 2261 2949 30459 32218 17202 21675 7140 7596 15613 30484 19753 19646 23941 1800 13098 4465 23941 1464 4782 12804 5046 2986 3001 167	927 948 773 948 773 1049 1201 1301 1309 1394 1639 1639 1521 174 1642 1973 1208 2305 2305 2305 2305 2305 2305 2305 2305	365 6 199 6 199 8 RRAG MILEAGE 159 325 353 288 490 1616 940 744 220 333 447 207 442 210 333 447 1572 1182 1182 1182 1182 1182 1182 1182 11	2343 2321 2406 2321 1847 1904 2111 1563 1743 1528 1176 1622 1978 1680 1109 1913 1756 1803 1790 837 7790 837 773 388 141 693 52 52 52 52 52 52 61 61 61 61 61 61 61 61 61 61 61 61 61

ALT. NO	THREE LE	SS THAN	TRUCKLO	AD								
DESTINA- TION	NCAD LINES	NCAD WEIGHT	NCAD COST	RRAD LIMES	RRAD WEIGHT	RRAD COST	SHAD LINES	SHAD WE I GHT	SHAD COST	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE MI/VER	454 708	41	11529	, 47					2 77 8 245			
MASS CONN/RI	194	13 161	3960 31321	150	1 12	4476	j - 4	6	3 139	. 381	1 156	9 3084
NEW YORK	1460	126 210	30656 42383	443	37	13001	14	7 1	9 687	8 28	7 148	3 2917
NJ /DEL	1115	16	18349	174	17	5239	Š		7 283 7 259			
VA/W.VA	1101	114 1 <b>36</b>	19747 3 <b>969</b> 2	131					5 190: 0 469:			2795
N. CARO	265 1452	138	3652 34131	181	41	7856 7631	5	2 1	6 401	4 371	101	4 2743
MICH INDIANA	1188	13	3374 33578	161	31	6266	5:	2 1	3 3599 9 288	2 471	102	2374
ILL.	37	5	1212	157 165	45		4		1 313 0 256			
ME NO	1702 325	135 48	43910 12413	26 ) 2 3 q					5 197 7 448		89:	2073
I OWA BRAGG	156 368	7	3052 42 <b>6</b> 4	1461	10	1957	5	1	4 148 5 2355	950	68:	2742
DEVENS ORUM	575 143	28	9641 2197	751 143	19	5550	6	6	7 287	371	157	3067
MECOV	1816	78	39754	125	14	3695 3637	51		4 143			
SHERIDN	1955 842	176 106	314 <b>09</b> 2 <b>638</b> 1	268 97		6765 37 <b>60</b>			0 4231 6 1875			2796
SELVOIR DIX	1060	195	29 19824	7 <u>9</u> 22 7		2663 7681		6	4 139	125	116	2793
EUSTIS	92 427	76	1991	95	21	4188	41	ì	7 2981 8 2840			
TOAD	1461	37	124 <b>0</b> 2 134 <b>68</b>	114 50	7	3585 2023	3: 4:		4 1501 2 1221			
LEAD	347	1	744	495	21	9425	151	, ,	2 5160			
				AMAÐ LINES	AMAD WEIGHT	COST					ANAB MILEAGI	t
FLORIDA GEORGIA	353 541	46 60	12260	1055 3523	133	30014	79					
S. CARD	176	42	7349	411	273 15	39861 4614	119					
M155	604 325	119	29342 12354	2307 2855	222 223	31483 40093	131				113	2327
TEMO KENT	299 162	31 21	1600 4569	2033 882	137	28278 20255	64 34	)	5 1953 6 1769	711	214	2226
JACKSON CAMPBLL	119	29	5022 1491	136	4	1429	36		1452	574	416 313	2627
STEWART BENNING	195	22	5961	669	3 21	. 766 7136	295 345	4			2 <b>69</b> 334	
GORDON	225	1 20	184 3845	32 1241	1 90	285 184 <b>07</b>	239		5 112 <b>09</b> 6 1874		148	2433
KNOX MCCLELM	5 <b>86</b> 151	2 <b>4</b> 25	1 <b>0944</b> 5612	199 232	15	3526 777	271	50	14522	603	365	2343
RUCKER ANAD	345 336	49	12488 3325	220 33	7	2054	134	1	7 5732	948	199	2408
		•	3347	_	•	•	412	71	22344	773	•	2321
				RRAD LINES	RRAD WEIGHT	RRAD COST					RRAD MILEAGE	
MISSOUR	158	59	9102	973	128	21349	44		2343	927	374	1847
ARKANS LOULSNA	190 390	29 72	7294 1714 <b>6</b>	1514 2921	119 241	18278 47606	47	1	1 1917	1049	159	1904
TEXAS OKLA	447 186	54 32	16954	3070 951	174 100	42619	98		1 2899	1563	325 353	2111 1691
KANSAS NEB/DAK	245 137	44	10376	1292	118	1 6822 2 <b>606</b> 7	125 59	1		1300	288 490	1563 1743
H000	152	51 2	1798 1698	211 100	26 2	6536 721	48 864	100		1344	1010	1528
POLK RILEY	184 75	16 11	5665 2976	903 420	40 28	8992 7472	357 471	61	17202	1276	210	1978
SAM HOU BLISS	77	15	3692	676	74	14407	21		701	1174 1642	533 447	1680 1660
L. WOOD	122	Q 7	48 2865	1525	175	410 33754	240 123	71		1975 934	807 462	1109
SILL CCAD	23 2	7	1328	57 9	10	1381	143	30	7140	1384	317	1546
RRAD	83	2	1152	i	ŏ	0	409	50		1679 1208	530	1805 1790
				TEAD	TEAD	TEAD					TEAD	
COL/WYO	103	20	5054	LINES 989	WEIGHT	COST 21857	34	11	2031	1614	MILEAGE 535	1170
NEW MEX CARSON	133 64	•	3697 2620	568 94	52 11	13146	27 678	26 135	2949	1839	623	1074
DAK	-	-		421	52	13060	• • • • • • • • • • • • • • • • • • • •	133	30459	1639	588 914	1258
				RRAD LINES	RRAD WEIGHT	RRAD COST	TEAD LINES	TEAD WEIGHT	TEAD COST		RRAD MILEAGE	TEAD MILEAGE
MNT/IDA UTAM/NV	161 119	24	7397	129	32	6965	933	139	25310	2210	1695	446
AR I ZONA	62	28 20	<b>689</b> 1 4253	95 1 <b>89</b>	17 20	42 <b>69</b> 5721	616 617	89 99		2305 23 <b>00</b>	1572	37
HUACHUC TEAD	135	12	485 <b>6</b> 63	98 382	20 43	4055 12794	702	70	22193	2222	1086	677 861
		•					SHAD	SHAD	SHAD	2073	1389	0 SHAD
CALIF	431	74 -	22250	446	111	24999	LINES 2304	WE I GHT	COST			MILEAGE
OREGON WASHNITH	132 70	24 17	7093 4297	78	7	2760	956	265 70	23961 18001	2609 2769	1843 214 <b>6</b>	32 383
IRWIN	4	•	113	1194	24 123	5328 39073	1068	132 10	30394 1 <b>66</b> 4	2712 2559	2218 1480	773 380
LEWIS ORD	27 891	116	1316 40419	33 77	5 10	1580	228 1160	17	4763 12804	2696	2231	758
PRSIDIO SAAD	81 116	. 16	4598 44 <b>96</b>	39 18	"	2036 712	458	45	5046	2880 2785	1811	141 81
TOTAL	14888		469298	_			379	65	5001	2689	1843	52
			175	42761	381Z ,	831156	18691	2490	578830			
							T	OTAL (	COST	2279285		
							Ť	OTAL I	LINES	96280		
							T	OTAL V	FE I GHT	9768		*

ALT. NO	FOUR LE	SS THAN	TRUCKLOA	•								
DESTINA- TION	NCAD LINES	NCAB WEIGHT	MCAD COST	RRAD LINES	RRAD WEIGHT	READ COST	SHAD LINES	SMAD WEIGHT	SHAD COST	MILEAGE NCAD	MILEAGE RRAD	MILEAGE SHAD
MAINE NH/VER	454 7 <b>08</b>		11529 19753	42 69	7	1011 2276	19		777 <b>24</b> 51	543 41 <b>6</b>		
MASS COMM/RI	1133	141	3900 31321	154	10	· 4476	46	7	1398 2483	313	1589	
NEW YORK PENN	1460 2518		30416 42103	44 <i>5</i> 35 <b>6</b>		13003	147		4878 2832		1481	
NJ/DEL MB/OC	1115	114	18349	174	17	5239 4139	56 45	7	2598 1909	133	1291	2847
VA/W.VA N. CARD	1982	156	39693 1652	197	46	7824 7830	57	20	4494	266	991	1688
BRAGG	344		4264	1463	74	28692	51 134	65	25556	438	1014	2768
DEVENS	575 143	28 6	9641 2197	151 145		5550 3491	66 37		287 <b>6</b> 1438	331	1979 141 <i>5</i>	2824
BELVOIR	1935	176	314 <b>09</b> 29	2 <b>68</b> 75	11	6765 2463	115 <b>26</b>	4	4236 1399	125	1141	
DIX EUSTIS	1040	105	19824	227 95	27 21	7681 4188	70 63		2987 2868		1327	2867
TOAD	427 14 <b>6</b> 1	76 37	124 <b>02</b> 1 <b>2480</b>	114 58		3585 2023	33 43		1567	241 127	1111	2840
LEAD	347	1	744	495	31	9425	193		5166		1167	
	LINES	LSDA WE I GHT	LBOA							LPDA MILEAGE		
MICH	1432	138	23710 2718	217 161	38 31	7651 6266	49 52		3599 2582		877	
INDIANA	1144	134	21934	152	31	5379	58	11	3155	192	1029	2238
VIL.	1792	133	871 34439	165 263	45 33	65 <b>02</b> 7 <b>407</b>	45 59		25 <b>69</b> 1 <b>9</b> 71	\$19	645 891	
MI NOS I CWA	325 136	44	1060k 2425	23 <b>0</b> 69	30 10	7975 1957	83 51	17	44 <b>29</b> 1 <b>586</b>		926 683	
MCCOY SHERIPH	1816 842	98 106	12101 20069	125 97	14 21	3417 37 <b>60</b>	59 50		4789 1879		933	1997
KENT CAMPBLL	442	102	9461 743	141	31	3647 656	34 295		1745	40	414	2389
KMOX	199	15	2309	380	28	7851	271	36	14522		369	
	HCAD LINES	NCAD WEIGHT	NCAB COST	LINES	MAD WEIGHT	AMA® COST	•			NGAD MILEAGR	MILEAGE WILEAGE	
FLORIDA GEORGIA	353 341	46 60	12260	1655 3525	193	30014	79 110	12 41	3922 9014	996 714	309	
S. CARD	176	42	7349	411	15	4614	54	14	1677	574	91 308	
ALABAMA MISS	325	119	25342 12354	2307 2855	222 223	11483 48093	131	25 22	72 <b>26</b> 5773	1038	113 3 <b>0</b> 3	2082
TEMN JACKSON	299 119	31 29	140 <b>4</b> 5022	2033 150	137	28278 1429	64 36		1953 14 <b>52</b>		214 313	
STEWART BEAMING	195	. 22	5961 184	466 32	21	7136 285	343 23 <b>9</b>	68 35	20074 11209	733 828	334 148	
GORDON MCCLELN	151	28 25	5843 5612	1241 232	90 10	184 <b>09</b> 777	57 3 <b>6</b>	4 2	1874 1946	649 773	237	2554
											•	
RUCKER	345 336	49	12488	220 33	7	2054	134 412	! 7 78	5752 22348	948 773	199	
			13488	770 33			134 412		3792 22348	948 773		24 <b>08</b> 2321
AHAĐ	334	4	1329	RRAD LINES	RRAD WEIGHT	ANAD COST	412	76	22348	773	RRAD MILEAGE	2321
MISSOUR ARKANS-	336 150 190	4 29 29	9162 7294	39 RRAD LINES 973 1314	RRAD WEIGHT 128	21349 15275	412	76	22348 2363 1317	773 927 1049	RRAD MILEAGE 374	1847 1904
ANAD MISSOUR	150	19	9162	RRAD LINES 973	RRAB WEIGHT	RRAD COST 21349	412	76	22346	927	RRAD MILEAGE 174	1847
MISSOUR ARKANS- LOUISMA	150 190 190	4 19 29 72	9162 7294 17146	33 RRAD LINES 973 1514 2921	128 119 241 174	21349 15278 47464 42619 16822	41 2 44 41 98 98	76 9 3 17 8 16	2348 2363 1517 4954 2899 4867	927 1049 1201 1363 1300	0 RRAD MILEAGE 374 159 321 353 288	1847 1904 2111 1691 1583
MISSOUR ARKANS- LOUISMA TEXAS ORLA	150 190 190 447 146 243	29 29 72 94 92 44 51	9162 7294 17146 18954 8102 10376 8798	33 RRAD LINES 973 1514 2921 3070 951 1292 211	128 119 241 174 100 118 26	38AD COST 21349 18278 47466 42619 16822 26667 4236	41 2 44 41 98 98 123 59	76 9 5 17 8 18	7363 1517 4954 2899 4867 2435 2261	927 1049 1261 1363 1366 1169	174 174 139 323 288 490 1010	1847 1904 2111 1691 1583 1749 1528
MISSOUR ARKANS- LOUISMA TEXAS OKLA KMISAS MEB/GAK MOGS FOLK	150 190 190 390 447 186 245 137 152	99 29 72 94 32 44 51 2	9102 7294 17146 16954 8102 10376 8798 1698 3663	33 RRAD LINES 973 1514 2921 3070 951 1292 211 100 903	128 119 241 119 241 174 100 118 28 2	20 30 A B A B A B A B A B A B A B A B A B A	41 2 44 41 98 123 59 48 864 357	76 9 3 17 8 18 19 106	2348 2363 1517 4954 2899 4867 3435 2261 32261	927 1049 1201 1363 1300 1109 1344 1321 1276	0 RRAD MILEAGE 374 139 325 325 288 490 1010 126 210	1847 1904 2311 1691 1583 1749 1528 1682
MISSOUR ARKANS— LOUISMA TEXAS OKLA KANSAS MEB! BAK MOOD POLK RILEY SAM MOU	150 190 190 390 447 186 245 137 152 184 75	99 29 72 94 32 44 51 2 16 11	9102 7294 17146 18954 8102 10376 1798 1698 3663 2976	33 RRAD LIMES 973 1514 2927 3076 981 1292 211 100 903 420 674	178 119 - 241 174 100 118 28 24 40 27	39AD COST 21349 18278 47464 42619 16832 34667 4234 721 8992 7472 14407	412 44 41 98 123 59 48 864 357 47; 21	76 9 3 17 8 14 8 9 106 61 82 2	22348 2363 1517 4954 2899 4847 2435 2266 32218 17202 21675 701	927 1049 1261 1363 1109 1304 1127 1276 1174	174 159 159 159 159 1610 1610 126 210 533 447	1847 1904 2111 1691 1583 1743 1682 1978 1680
MISSOUR ARKAMS— LOUISMA TEXAS OKLA KAMSAS MEB! DAK MOOD POLK SILEY SAM MOU SLISS L. WOOD	150 190 190 390 447 186 245 187 182 184 75 77	29 29 72 24 32 46 51 2 16 11	9162 7294 17146 16954 8102 1678 1678 1678 3663 2976 3692 48	33 RRAD LINES 973 1514 2921 3070 951 1292 211 100 903 420 676 17	17.80 WEIGHY 12.8 11.9 - 241 17.4 100 17.8 28 24 40 28 74 21.75	30 AD COST 21349 15278 47464 42619 1632 24667 4336 721 8992 14407 410 33754	412 44 41 98 93 135 48 84 47 27 21 24 21 24 22	76 9 5 17 8 16 61 62 2 71 13	22348 2343 1517 4954 2899 4843 2261 12218 13218 13218 13218 1445	927 1049 1204 1363 1306 1109 1344 1521 1276 1176 1642 1975	RRAB MILEAGE 374 159 325 383 288 499 1010 326 210 533 447 807 462	1847 1904 2111 1591 1593 1749 1528 1682 1978 1680 1109
MISSOUR ARKAMS— LOUISMA TEXAS OKLA KAMSAS HEG/BAK HOGB FOLK SILEY SAM HOW LISS L. WOOD SILL CCAD	150 190 390 447 646 245 137 132 184 75 77 2 122 122	29 29 72 34 32 44 51 2 16 11 15	9102 7294 17146 18954 8102 18376 8798 1698 3663 2976 3692 48 2862 1328	39 NRAD LINES 973 1514 2921 3070 951 1292 211 100 903 420 676 (17 1525 57	128 119 201 174 174 100 178 20 40 28 74 42 2175	28AB COST 21349 18278 47464 43819 16822 26827 4234 721 8992 7472 1440 29754 1381	412 44 41 98 123 59 48 48 47 21 24 9 123 143	76 9 17 8 16 61 62 2 71 13 30	2348 2343 1517 4954 4867 2499 4867 2261 32218 17	927 1949 1261 1363 1366 1369 1366 1376 1376 1376 1376 1384 1384	RRAD MILEAGE 374 139 325 288 490 1010 326 210 533 447 807 462 317 537	1847 1904 2111 1583 1743 1582 1978 1682 1978 1680 1680 1109 1933 1544
MISSOUR ARKANS— LOUISMA TEXAS ORLA KANSAS MEB/DAK MODB FOLK SILEY SAM MOU BLISS L. WOOD SILL	150 190 190 447 186 249 137 137 17 2 12 2 12 2	39 29 72 34 32 46 51 16 11 15	9102 7294 17146 16954 8102 10376 8798 1698 1693 2978 2978 48 2863 2963 2973 3692 48 2863	39 RRAD LINES 973 1514 2921 3070 951 1292 211 100 903 420 476 (7 1523 57 7	READ WEIGHT	20 2349 15278 47404 43619 16822 24607 4324 16822 24607 4324 16822 16921 14407 410 15754 1381 1641 0	412 44 41 98 98 123 59 48 357 47; 21 240 123	78 9 5 17 8 18 4 9 106 61 62 27 71 13	2348 2343 1517 4954 2496 2435 2216 17202 21675 701 13098 4465 7140	927 1049 1201 1365 1306 1309 1344 1521 1276 1174 1642 1975 934	174 179 179 179 179 179 179 179 179 179 179	1847 1904 2111 1691 1528 1628 1640 1109 1931 1544
MISSOUR ARKAMS— LOUISMA TEXAS ORLA KAMSAS HEGGO FOLK RILEY SAM HOU BLISS L. WOOD SILL CCAD STAO	150 190 190 390 447 197 192 184 75 77 77 2122 23 2	49 29 72 54 82 216 11 115 0 7	9102 9102 7294 17146 18954 8102 10376 8796 3663 2978 3672 3672 1378 1378	39 RRAD LINES 973 1514 2921 3070 951 1292 211 100 903 420 476 (7 1525 57 9 1 TEAD LINES	0 RRAD WEIGHT 128 174 174 174 174 175 175 10 0 0 TEAD WEIGHT	20 20 20 20 20 20 20 20 20 20 20 20 20 2	412 44 41 93 123 59 484 357 471 21 24 21 24 474 474 479	78 9 5 177 8 14 4 9 9 796 61 62 2 7 71 1 13 30 16	2348 2343 1517 4954 2899 2435 2216 1221 1720 21675 701 1308 4463 7140 7596 15613	927 1849 1281 1366 1366 1366 1367 1376 1376 1376 137	RRAD MILEAGE 374 1539 323 383 288 499 1010 126 210 533 447 807 807 153 0 78AD MILEAGE	2329 1847 1904 2111 1692 1758 1743 1682 1978 1682 1978 1680 1109 1793 17546 1805 1790
MISSOUR ARKAMS— LOUISMA TEXAS OKLA KAMSAS HEG/BAK HOGB FOLK SILEY SAM HOW LISS L. WOOD SILL CCAD	150 190 390 447 646 245 137 132 184 75 77 2 122 122	29 29 72 34 32 44 51 2 16 11 15	9102 7294 17146 18954 8102 18376 8798 1698 3663 2976 3692 48 2862 1328	39 RRAD LINES 973 1514 2927 3974 1292 211 100 903 420 676 17 1523 37 9	9 RRAD WEIGHT 728 1179 241 1170 1172 226 22 24 40 228 74 4 2 2 175 110 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	28APC COST 2734P 18278 47486 42819 16822 26807 2737 8992 7472 14407 410 19734 1381 141 0	412 44 41 98 123 59 48 48 47 21 24 9 123 143	76 9 17 8 16 61 62 2 71 13 30	2348 2343 1517 4954 4867 2499 4867 2261 32218 17	927 1949 1261 1363 1366 1369 1366 1376 1376 1376 1376 1384 1384	174 139 325 325 328 499 1010 226 333 447 462 333 447 333 447 330 WEAD	1847 1904 2111 1591 1583 1743 1682 1973 1680 1109 1109 1734 1805 1790
MISSOUR ARKANS— LOUISMA TEXAS ORLA KANSAS MER/ASK MOOD FOLK RILEY SAK MOUD SLISS L. WOOD STAO	150 190 390 447 186 245 197 197 192 122 23 2	39 29 72 54 68 51 1 1 1 1 5 0 7 7 7 7 0 2 2	9102 7294 17146 1695 16376 1698 1698 1698 2976 1692 2863 13152	39 RRAD LINES 973 1514 2921 3970 951 1292 211 100 903 420 476 (17 1523 12 15 15 15 15 15 15 15 15 15 15 15 15 15	RRAD WEIGHT 128 129 241 170 170 28 28 74 2	20 20 20 20 20 20 20 20 20 20 20 20 20 2	412 44 41 98 92 123 59 48 864 357 47: 21 240 143 374 409	79 9 9 17 8 18 8 9 106 61 62 2 71 63 30 16 50	2348 2363 1517 4954 2899 4867 2435 2216 17202 21675 7398 4465 7596 15613	927 1049 1201 1309 1300 1300 1300 1310 1311 1411 1411 1411	RRAD MILEAGE 374 1539 323 383 288 499 1010 126 210 533 447 807 807 153 0 78AD MILEAGE	2329 1847 1904 2111 1692 1758 1743 1682 1978 1682 1978 1680 1109 1793 17546 1805 1790
MISSOUR ARKANS— LOUISMA TEXAS ORLA KANSAS MESIAM MOGB POLK SILEY SAM MOU SLISS L. WOOD SILL CCAD RRAD COL/WYO MEX TASSON	150 190 390 647 186 245 137 152 122 23 23 23 23 144 155 175 175 175 175 175 175 175 175 175	39 29 72 54 51 11 15 0 0 7 7 1 0 2 2 8 8	9102 7294 17146 18994 81092 10376 0798 1698 3693 2693 2862 1328 1152	339 RRAB LINES 973 1514 2921 3979 951 1292 1293 420 676 677 17 1523 7 9 1 1 TEAD LINES	7240 7267 7267 7267 7267 7267 726 26 27 26 27 27 27 27 28 27 27 28 28 29 20 20 21 27 27 28 28 29 20 20 21 21 21 21 21 21 21 21 21 21 21 21 21	20 20 20 20 20 20 20 20 20 20 20 20 20 2	412 44 41 98 923 128 864 337 47: 21 24 24 47 24 47 24 47 24 47 24 47 24 47 24 47 24 47 47 47 47 47 47 47 47 47 47 47 47 47	76 9 9 1 17 8 14 4 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2348 2343 1517 4954 2899 2435 2435 2218 17202 2175 701 13098 4465 71400 15613	927 1049 1201 1306 1306 1306 1321 1276 1344 1384 1384 1384 1384 1483	174 174 174 125 225 228 499 1010 126 210 246 217 233 447 807 462 317 230 0 7EAD MILEAGE 533 623 581 884 884 884 884 884 884 884 884 884 8	1847 1904 2111 1583 1743 1682 1930 1680 1680 1680 1790 1793 1790
MISSOUR ARKANS— LOUISMA TEXAS ORLA KANSAS MER/BAK HOOP POLE SAM HOU ALISS L. WOOD SILL CCAD HRAD  COL/WYO HEW MEX CARSON DAK	150 190 390 647 187 187 187 187 2122 23 3 2 183 64	39 29 72 34 44 51 1 1 1 5 0 7 7 7 0 2 2 8 8 9 9	9102 7294 17146 1896 8102 10376 1498 3693 2976 3692 48 2865 1328 13 1152	39 RRAD LINES 973 1514 4292 13970 4290 476 17 1525 377 1 TEAD LINES 989 421 RRAD LINES 129	TEAD WEIGHT 122 175 100 0 0 TEAD WEIGHT 22 175 111 275	21349 15276 47464 42619 16322 26407 4130 721 5992 7472 14407 410 23774 11311 141 0 TEAD COST 21857 73714 2429 13116 2429 6645	412 44 41 98 98 123 59 48 864 357 47; 21 240 23 143 374 409 27 678 YEAD LINES	76 9 9 5 17 8 18 8 7 106 61 62 2 71 13 30 16 50  TEAD WEIGHT	2348 2363 1517 4954 2899 2495 2216 52218 17202 21675 701 13098 4465 7140 7596 15613 2631 2749 38459 TRAD COST	927 1049 1201 1303 1306 1307 1307 1307 1307 1307 1307 1307 1307	RRAD MILEAGE 174 159 325 329 490 1910 926 210 525 33 447 462 210 533 447 530 0 TEAD MILEAGE 934 RRAD MILEAGE 1498	1847 1904 2111 1694 2111 1694 1583 1743 1528 1682 1933 1680 1109 1933 1546 1805 1790 1107 1107 1107 1107 1107 1107 1107
MISSOUR ARKANS— LOUISMA TEXAS ORLA RANSAS MER/ASK MODE POLK RILEY SAM MOU BLISS L. WOOD STAD MEW MEX CARSON DAK	150 190 390 447 186 245 137 75 77 2 122 23 2 83	39 29 72 54 44 51 17 15 0 7 7 7 7 7	9102 7294 17146 18954 8102 10376 1698 3693 2976 3692 2863 131 1152	39 RRAD LINES 973 1514 2921 3979 951 1292 2951 1292 420 476 477 1525 17 7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	RRAD WEIGHT  7 28 7 119 - 241 174 100 718 2 28 74 4 28 74 10 0 0 TEAD WEIGHT 32 RRAD WEIGHT	20 20 20 20 20 20 20 20 20 20 20 20 20 2	412 441 98 92 123 59 48 864 357 47? 21 240 123 143 374 409	76 9 9 17 8 16 8 9 16 16 16 17 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	2348 2363 1517 4954 2899 4867 2251 32218 17202 21675 7396 4465 7596 15613 2031 2949 38459 72AD COST	927 1049 1201 1309 1300 1300 1300 1310 1311 1411 142 1311 147 1208	174 174 174 174 175 195 195 195 195 195 195 195 195 195 19	1847 1904 2111 1691 17563 17528 1682 1978 1680 1109 1934 1805 1790 11074 1258 TEAD MILEAGE
MISSOUR ARKANS— LOUISMA TEXAS ORLA KANSAS MES/BAK MOGB POLK SILEY SAM MOU SLISS L. WOOD SILL CCAD RRAO  COL/WYO MEW MEX CARSON DAK WTAH/MW	150 190 390 447 186 249 137 75 77 77 2 122 23 2 33 64	39 29 72 54 44 51 11 15 0 7 7 7 0 2 2 8 8 9 9	9102 7294 17146 18954 8102 18376 83663 2976 3692 48 2832 133 133 1152	339 RRAB LINES 973 1514 2921 3979 951 1292 211 1000 903 420 476 476 17 15239 470 LINES 989 568 944 421 REAG LINES	728 729 729 729 729 729 729 729 729 729 729	20 20 20 20 20 20 20 20 20 20 20 20 20 2	442 444 41 98 98 123 98 48 864 357 471 240 123 143 374 409 78 78 78 78 78 78 78 78 78	76  9  9  17  8  10  61  62  2  71  63  30  16  50  TEAD WEIGHT  139  89	2348 2363 1517 4954 2899 4867 2251 12218 17218 17218 17218 17218 17218 17218 17218 17218 17318 2675 2675 2749 38459 172AD COST 25318 27276	927 1049 1201 1303 1306 1306 137 137 137 137 137 137 137 137 137 137	174 159 323 288 499 1010 226 228 499 1010 226 233 333 407 462 377 47	1847 1904 2111 1691 1569 1742 1682 1972 1680 1680 1109 1934 1180 1790 11074 1258 TEAD MILEAGE
MISSOUR ARKANS— LOUISMA TEXAS ORLA KANSAS MESIAM MOOD FOLK SILEY SAM MOU BLISS L-WOOD SILL CCAD MRW MEX CARSON DAK MNY/IDA UTAMINW ARIZONA MINY/IDA	130 190 190 390 447 186 245 137 75 77 72 2 122 23 2 3 3 4 4 133 64	39 29 72 54 44 51 11 15 0 7 7 7 7 7 7 2 2 2 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	9102 7294 17146 18954 8192 18376 1898 1898 1898 1898 1978 1978 1978 1978	339 RRAD LINES 9731 1514 2921 3070 951 1292 420 474 17 1523 470 LINES 989 588 944 421 RRAD LINES 1295 189 985	TRAD WEIGHT  728 7247 100 728 22 173 24 22 173 74 22 173 70 0 0 TEAD WEIGHT  90 32 RRAD WEIGHT 32 RRAD WEIGHT 226	20 20 20 20 20 20 20 20 20 20 20 20 20 2	442 444 441 948 988 484 357 471 240 123 143 374 409  TEAN TEAN TEAN 983 6166 617 982	78  9  5  17  6  16  8  7  16  22  71  13  30  14  50  TEAD WEIGHT  139  99  70  110  139  140  150  150  150  150  150  150  150	22348  2363 1517 4954 2899 4867 2495 32218 17218 1701 13098 4465 7140 7396 15613  2031 2031 2031 2031 2752 178AD COST 25918 7276 19931	927 1049 1201 1303 1304 1321 1321 1321 1324 1324 1324 142 1334 1479 1208 1614 1639 1639	174 174 174 174 174 177 177 177 177 177	1847 1904 2111 1691 1583 1783 1602 1973 1680 1109 193 1546 1805 1790 1170 1074 1258 TEAD MILEAGE
MISSOUR ARKANS— LOUISMA TEXAS CRLA KANSAS MES/BAK MOGB POLK SILEY SAM MOU SALISS L. WOOD SILL CCAD RRAO  COL/WYO MEW MEX CARSON DAK MMY/IDA UTAM/INV ARIZOMA MINCHIEAD	150 190 390 447 186 245 137 75 77 77 2 122 23 2 33 64	39 29 72 54 44 51 11 15 6 7 7 7 7 7 2 8 8 9 9 12 14 15 15 15 15 15 15 15 15 15 15 15 15 15	9102 7294 17146 18954 8102 18376 8408 1698 3663 2976 3692 40 2863 133 1152 3954 3697 2620 7397 4897 4253 4896 4897 4897 4899 4899 4899 4899 4899 4899	39 RRAD LINES 973 1514 2921 3979 951 1292 291 1292 470 676 17 1525 57 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	TRAD TEAD TEAD TEAD TEAD TEAD TEAD TEAD TE	20 20 20 20 20 20 20 20 20 20 20 20 20 2	442 444 441 948 953 123 964 864 357 471 240 123 143 374 409  TEAD LINES 933 616 617 982 933 SMAD LINES	76  9  5  17  8  10  6  2  2  71  63  30  16  50  TEAD WEIGHT  SNAD WEIGHT	2348 2363 1517 4954 2899 4867 2251 17218 1	927 1049 1201 1309 1309 1309 1344 1321 144 1642 1975 934 1384 1479 1208 2210 2305 2305 2222 2673	TRAD MILEAGE  174 159 323 288 499 1010 226 233 337 462 337 462 333 462 333 462 334 462 335 462 339 462 1010 326 67 67 67 67 1110 1110 1110 1110 1110 1	1847 1904 2111 1691 1589 1742 1682 1972 1680 1109 1934 1805 1790 11074 1258 TEAD MILEAGE 446 37 677 861 9
MISSOUR ARKANS— LOUISMA TEXAS ORLA KANSAS MESIAR MOGO POLK SILEY SAM MOU SLISS L-WOOD SILL GCAD RRAD  COL/WYO MENT /I DA UTAM/NW AR I ZOMA MINT/I DA UTAM/NW AR I ZOMA MINT/I DA UTAM/NW AR I ZOMA MINT/I DA UTAM/NW AR I ZOMA CARSON CAL IP OREGON	130 190 190 390 447 166 249 137 75 77 72 2 122 23 2 3 3 64	39 29 72 54 44 51 11 15 0 7 7 7 0 2 2 2 8 8 9 9 12 12 13 15 15 15 15 15 15 15 15 15 15 15 15 15	9102 7294 17146 16954 8102 1695 1695 3663 2976 3693 2976 31328 1328 1328 1328 1328 1328 1328 132	339 RRAD LINES 973 1514 2921 3979 951 1292 291 1292 476 17 1523 470 LINES 989 562 944 421 READ LINES 1293 162 4444 78	728 724 100 778 247 100 778 25 27 778 27 778 27 778 27 778 27 778 27 778 27 778 27 778 27 778 27 778 27 778 27 778 27 778 27 778 278 2	20 2349 15275 47464 4269 4752 13060 COST 21857 73166 COST 21857 73166 COST 21857 73166 COST 4665 4269 5725 4269 2766	442 444 444 448 449 488 484 357 471 240 123 443 374 409 34 27 TRAD 488 416 617 982 993 SHAD LINES	78  9  5  17  8  14  8  9  104  82  7  11  13  16  50  TEAD WEIGHT  139  99  76  1 SMAD WEIGHT  245  75  75  75  75  87  87  76  1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	22348 2363 2363 1517 4954 2899 4867 2236 13218 13218 13218 13098 4463 7396 13613 2031 2949 38459 78AB COST 25318 2718 19931 22193 22193 23186 3MAB COST	927 1049 1201 1303 1304 1321 1321 1321 1321 1321 1321 1321 132	TRAD MILEAGE  174 129 129 129 129 120 126 127 137 107 462 177 130  TEAD MILEAGE 127 127 128 127 128 127 128 128 128 128 128 128 128 128 128 128	1847 1904 2111 1691 1583 1743 1682 1978 1680 1109 1931 1546 1805 1790 1170 1074 1258 TEAD MILEAGE 446 47 677 677 677 677 677 677 677 677
MISSOUR ARKANS— LOUISMA TEXAS ORLA KANSAS MERIAM MODO FOLK SALE SAL L WOOD SILL CCAD RRAD  COL/WYO MEV MEX CARSON DAK UTANIINV ARIZONA UTANIINV ARIZONA CALIP OREGON URSNITTN IRVIN	130 130 190 390 447 186 248 137 132 122 23 2 2 122 23 2 3 3 4 4 7 5 7 7 7 7 7 7 7 2 2 1 2 2 3 2 3 4 4 7 5 7 5 7 2 1 2 2 3 4 4 7 2 3 3 4 4 4 7 2 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	39 29 72 54 46 51 17 15 0 7 7 7 7 7 2 26 8 8 9 9 22 24 27 28 29 29 20 21 21 21 21 21 21 21 21 21 21 21 21 21	9102 7294 17146 1895 1895 1895 1895 1895 1895 1895 1895	339 RRAD LINES 9731 1514 2921 3070 951 1292 420 476 (17 1523 420 476 (17 1523 420 476 421 READ LINES 989 588 4421 READ LINES 1299 382	728 7247 100 7128 7247 100 7128 7247 100 7128 7247 100 7128 7247 100 7128 7247 100 71240 7	2007 2037 2037 18278 47404 42619 16822 2607 727 4407 1407 1381 (41 1381 (41 1381 141 1381 141 1381 641 1381 141 1381 641 1381 141 1381 141 141 141 141 141 141 141 141 141 1	442 444 444 448 449 449 449 449 449 449 449	78  9  5  17  8  16  8  9  106  62  2  71  13  30  16  50  TEAD WEIGHT  139  99  76  11  SHAD WEIGHT  245  76  132  160	22348  2363 1517 4954 2899 4867 2495 2261 3218 1701 13098 4465 7140 7396 15613  2031 2799 36459  77RAD COST 25918 7276 19931 22193 22193 22193 23183 6 SMAD COST	927 1049 1201 1201 1303 1304 1321 1374 1374 1375 1375 1479 1208 1614 1639 1639 2222 2673 2769 2776 2776 2772 2772	TRAD MILEAGE  174 125 325 325 326 490 1010 126 127 107 530  YEAD MILEAGE 137 87 87 87 107 107 107 107 107 107 107 107 107 10	1847 1904 2111 1583 1783 1783 1682 1973 1680 1109 1933 2546 1805 1790 1170 1258 TEAD MILEAGE 446 37 677 677 677 677 677 677 677 677 677
MISSOUR ARKANS— LOUISMA TEXAS ORLA KANSAS MERIAM FOLK RILEY SAM MOU SLISS L. WOOD SILL CCAD RRAD  COL/WYG MEY MEX CARSON DAK UTAMINY ARIZONA CALIP OREGON MASINITH LEWIS GOO	130 130 130 390 447 146 137 132 124 75 77 77 2 122 23 2 133 44 113 133 44 119 62 137 132 144 119 62 137 132 144 147 147 147 147 147 147 147 147 147	39 29 72 34 46 51 17 0 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	9102 7294 17146 1895 1895 1895 1895 1895 1878 1878 1878 1878 1878 1878 1878 187	339 RRAD LINES 9731 1514 2921 3070 951 1292 420 476 (7 1523 470 LINES 989 568 471 RRAD LINES 1292 367 476 421 RRAD LINES	TEAD WEIGHT  128 119 241 174 140 718 24 28 74 29 175 100 0 TEAD WEIGHT  32 RRAD WEIGHT  32 177 34 40 40 40 40 40 40 40 40 40 40 40 40 40	2007 201349 18278 47404 42619 16922 26067 6219 7211 4407 1407 13714 1381 1410 005T 21837 73146 2429 13040 005T	412 441 98 98 125 59 47: 240 143 374 7: 473 473 473 473 474 475 476 477 478 477 478 477 478 477 478 477 478 478	78  9  5  17  6  8  16  8  7  16  8  7  16  13  10  14  50  TEAD WEIGHT  139  99  90  11  SHAD WEIGHT  245  176  177  811  811  811  811  811  811	22348  2363 1517 4954 2899 4867 2435 2261 3218 17167 701 13098 4465 7140 7596 75613  2031 2549 30459  7RAD COST 25318 7276 19931 22193 8 SMAD COST 23961 10061 10097 23961 10061 10097 23961 10064 4789 12864	927 1049 1201 1205 1306 1307 1344 1321 1276 1472 1975 1384 1479 1208 2210 2305 2305 2305 2305 2222 2873 2889 2769 2789 2789 2789 2789 2789 2789 2789 278	RRAD MILEAGE 1374 1253 2253 2288 4990 2264 1010 126 126 126 127 127 127 127 128 128 128 128 128 128 128 128 128 128	1847 1904 2111 1691 1583 1783 1528 1682 1978 1680 1109 15346 1805 1790 1170 1258 TEAD MILEAGE 446 377 861 877 861 877 861 878 878 878 878 878 878 878 878 878 87
MISSOUR ARKANS— LOUISMA TEXAS ORLA GRAS MERIAS MERI	150 190 390 477 186 245 137 75 77 2 122 23 2 3 133 64	29 72 54 48 51 17 15 5 6 6 6 6 6 7 7 7 7 0 0 2 2 2 2 8 8 9 9 12 2 8 12 2 8 12 2 8 12 12 6 4 4 17 6 4 4 17 6 4 4	9102 7294 17146 1695 1695 1695 1695 1695 1695 1695 169	39 RRAB LINES 973 1514 2921 3979 951 1292 271 100 9051 420 476 471 1525 420 476 421 RRAB LINES 129 989 362 421 RRAB LINES 129 989 362 446 78 82 1194 33	TEAD WEIGHT 32 2 173 110 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1	20 2 2 3 4 9 1 5 2 7 5 2 1 3 9 9 2 2 1 3 9 9 2 2 1 3 9 9 2 2 1 3 9 9 2 2 1 3 9 9 2 2 1 3 9 9 2 2 1 3 9 9 2 2 1 3 9 9 2 2 1 3 9 9 2 2 1 3 9 9 2 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 3 1	412 441 98 923 59 484 357 47? 21 240 27 478 78 78 78 78 78 78 78 78 78 78 78 78 7	78  9  5  17  8  18  18  19  62  2  71  63  16  50   TEAD WEIGHT  139  99  70  1  SHAD WEIGHT  265  78  78  191  191  191  191  191  191	2348 2363 1517 4954 2899 4867 3236 15218 17218 17218 1701 13098 4465 7501 13098 4465 7501 2949 38459  TEAD COST 25318 19931 22195 SMAD COST 23981 16661 16661 16664 4783	927 1049 1201 1303 1304 1304 1305 1304 1314 1479 1208 1614 1839 1639 2210 2203 2203 2203 2203 2203 2203 2203	RRAD MILEAGE 174 125 125 125 125 125 126 126 126 126 126 126 126 126 126 126	1847 1904 2111 1691 1583 1743 1682 1978 1680 1109 1934 1805 1790 11074 1258 TEAD MILEAGE 446 37 677 861 81LEAGE
MISSOUR ARKANS— LOUISMA TEXAS TEXAS ORLA KANSAS MES/BAK MOGO POLK SILEY SAM MOU SLISS L. WOOD SILL CCAD SRAO  COL/WYO MEY MEX CARSON DAK  MNY/IDA UTAM/NY ARIZOMA HIMACMUG TEAD  CALIP OREGOM WASHITM IRWIN LEWIS CARS ORD PRSIBIO	130 130 130 390 447 186 243 137 75 77 72 2 122 23 2 2 3 3 431 132 70 431 132 70 431	29 72 54 44 51 11 15 5 6 7 7 7 4 7 24 11 6 11 11 15 11	9102 7294 17146 18954 8102 18376 83653 2976 36653 2976 3692 40 2832 133 1152 3054 3697 2629 4832 4832 4832 4832 4832 4832 4832 4832	339 RRAB LINES 973 1314 2921 3876 951 1292 2476 676 17 1523 420 476 17 1523 470 LINES 989 568 944 421 RRAG LINES 129 98 362	TEAD TEAD TEAD TEAD TEAD TEAD TEAD TEAD	20 2 2 3 4 9 1 5 2 7 5 2 1 3 9 7 2 1 3 9 7 2 1 3 9 7 2 1 3 9 7 2 1 3 9 7 2 1 3 9 7 2 1 3 9 7 2 1 3 9 7 2 1 3 9 7 2 1 3 9 7 2 1 3 9 7 2 1 3 9 7 2 1 3 9 7 2 1 3 9 7 2 1 3 9 7 3 9 3 9	442 444 441 98 993 123 599 484 884 124 124 124 124 127 478 127 478 143 144 198 148 148 148 148 148 148 148 148 148 14	78  9  9  17  8  10  12  22  71  13  16  50  TEAD WEIGHT  SHAD WEIGHT  26  129  99  76  139  81  45  45  46  47  81	2348 2363 1517 4954 2896 2436 2236 15218 12218 13218 13218 13098 4463 7596 15613 2449 2645 2749 2645 2749 2749 2749 2749 2749 2749 2749 2749	927 1049 1201 1303 1304 1305 1304 1321 1321 144 1521 144 1521 144 1334 1479 1208 2210 2305 2222 2073 246 2782 2789 2789 2789 2789 2789 2789 2789	TRAD MILEAGE 1344 1393 1393 1393 1393 1393 1393 1393	1847 1904 2111 1691 17569 17528 1682 1682 1682 1683 1778 1680 1109 1934 1805 1790 11074 1258 TEAD MILEAGE 446 32 677 861 9 5HAD 84 LEAGE 2 583 773 380 773 141 81
MISSOUR ARKANS— LOUISMA TEXAS ORLA KANSAS MESIAM MOGO POLK SILEY SAM MOU SLISS L. WOOD SILL CCAD MRAD COL/WYO MEX CARSON DAK MITAHINY ARIZOMA MIACHMC TEAD CALIP OREGON WASHNTW IRVIE C	130 130 130 130 137 146 243 137 75 77 77 2 122 23 2 2 3 3 4 4 137 4 4 7 5 2 2 2 2 2 2 2 3 3 7 7 7 7 7 7 7 7 7 7 2 2 2 3 3 3 4 4 7 7 7 7 7 7 7 7 7 7 8 7 8 7 8 7 8 7	29 72 54 44 51 11 15 5 6 7 7 7 4 7 24 11 6 11 11 15 11	9102 7294 17146 1695 1695 1695 1695 3663 2976 3693 2976 31926 1328 1328 1328 1328 1328 1328 1328 1328	339 RRAD LINES 973 1514 2921 3979 951 1292 951 1292 420 476 17 1523 420 LINES 989 568 9421 READ LINES 129 951 8840 17 1529 18 18 18 18 18 18 18 18 18 18 18 18 18	TEAD TEAD TEAD TEAD TEAD TEAD TEAD TEAD	20 2 2 3 4 9 1 2 2 4 9 9 2 7 6 9 2 2 3 9 9 7 1 2 4 9 9 2 7 6 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 2 1 3 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	442 444 441 98 993 488 884 357 471 240 123 143 374 409 34 27 78 78AD 993 616 617 982 993 5MAD LINES 2384 1668 7986 1668 7987	78  9  9  17  8  14  8  16  62  2  71  63  36  16  50  TEAD WEIGHT  139  99  76  119  819  129  140  150  141  150  150  150  150  150	22348  2363 1517 4954 2899 2899 2216 13218 17218 17218 17218 1730 13098 4465 7140 7396 15613  2031 2949 30459  TRAD COST  25518 7276 19931 22193 22193 23193 23193 23193 23193 23193 23193 23193 23193 23193 23193 23193 23193	927 1049 1201 1303 1304 1305 1304 1321 1321 144 1521 144 1521 144 1334 1479 1208 2210 2305 2222 2073 246 2782 2789 2789 2789 2789 2789 2789 2789	TRAD MILEAGE 1344 1393 1393 1393 1393 1393 1393 1393	1847 1904 2111 1691 17569 17528 1682 1682 1682 1683 1778 1680 1109 1934 1805 1790 11074 1258 TEAD MILEAGE 446 32 677 861 9 5HAD 84 LEAGE 2 583 773 380 773 141 81

MANAGER PROPERTY ASSESSMENT

N.

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TOTAL

TOTAL COST 2200298
TOTAL LINES 96280
TOTAL WEIGHT 9768

400E	u PS		LT. 110	ONE												
OFSTINA NOIT	HC4D LINES	NCAO WEIGHT	SONE	UPS	OPS COST	rrad Lines	RRAD WEIGHT	UPS ZONE	HPS RATE	UPS COST	SHAD LIN <b>ES</b>	SHAD WEIGHT	UPS	UPS RATE	UPS	TOTAL COST
MAENE NH.: VER	942 1287	11950 12669	:	2.64	2467 3398	128	1256	7	3.74 3.26	479 593	75 98	656 836	:	5.0		3346
MASS	1316	13159	3	2.14	2816	152	1896	6	3.26	1148	100	1393	ì	5.0	7 913	4468 4876
CONN/RI NFW YOR	2135 5391	20974 44 <b>88</b> 5	3	2.14	4569 11537	141 1232	1887 7286	•	3,26 3,26	1812	144 45 <b>6</b>	1324 3789	:	5.0		6411 17865
PFNN NJ/DEL	4416 3054	29551 27551	3	1.73	7 <b>648</b> <b>666</b> 7	578 599	2892 3841	6	3.26 3.26	1984	199 250	1688	:	5.0	1009	10533
MD/DC	1711	11531	2	1.73	2968	291	2364	6	3.26	945	95	846	•	5.0	482	1000 43 <b>70</b>
VA/W.VA N. CARO	233 <b>0</b> 2357	17259 18184	3	2.14 2.14	4986 4836	519 615	272 <b>0</b> 3163	5	2.€ 2.€	1453 1722	216 166	1956 1236	:	5.0		75 15 7 194
S. CARO	1974 1581	14921	:	2.64 2.64	5211 3963	424 461	2645 1774	5	2.8	1167	163	1461		5.0	426	7225 6282
HICH	1133	11464	i	2.64	2991	265	1853	5	2.0	742	121	1100	i	5.0	613	4347
INDIANA	29 <b>68</b> 1512	22168 14 <b>64</b> 2	4	2.64 3.62	78 36 4366	46 <b>0</b> 43 <b>8</b>	2993 2682	5	2.8	1288	214 198	1687 1679	• 7	5.6		102 <b>09</b> 6539
W I SC M [ NN	1091 2115	19866	\$ \$	3.62	5711 6387	475 483	3124 2787	5	2.8	1330	158	1691 2017	7	4.4		7741 8482
AWOI	1584	11133	5	3.02	4784 5136	207 4627	1604	4	2.47	709	116	107	7	4.4	523	6615
DEVENS	4210		3	2.14	1009	516	3967	5	2. <b>0</b> 3,26	11276	1726 210	14548 1624	•	5.6	7 8751 7 1 <b>06</b> 5	25156 11756
MCCOY	2681 3052	19156	3	2.14 ).92	5737 9217	30 L 532	2687 3758	6	3,26 2.4	9 <b>0</b> 1 1546	177 254	1748		5.07		7616
MEADE SHERIDM	9164	5223 <b>8</b> 15 <b>959</b>	2	1.73	15054	1231	6259 2003	6	3,26	4613	61 L 163	4972 1655		5.07	3070	22965
BELVOLR	2090	12865	Ž	1.73	3616	270	1577	6	3.26	110	133	777	i	5.0	669	9161 3165
DIX EUSTIS	4154 121	27 <b>053</b> 1152	3	1.73	7186 259	5 <b>46</b> 543	33 <b>06</b> 1 <b>095</b>	•	3,26 3,26	1891 [776	214 159	2179 1427	:	5.07		10162 2035
JACKSON LEE	2105 2056	16509	4	2.64 2.14	5557 44 <b>06</b>	426 292	1161 2627	5	2.0	1193	114	1009	•	5.07		7328
TOAD	2365 76	1288	ž	1.73	4437 131	294 1483	13845	į	3,26 3,26	958 4574	200	1411	i	5.07	1460	6856 8782
sustor	-	364518	•	••••	170142		119267	•	3,50	56805	6197	422 <b>0</b> 664 <b>6</b> 6	•	5.07		267013
FLORIDA	463	4022	5	1.23	1302	2282	10508	MA	2.86	6527	224	1916		5.61		1964
GEORGIA	666	5887	4	2.01	1071	4606	22997	4	2.3	18594	259	2262	•	5.0	1313	13778
ALABAMA H[\$\$	1065	6490 87 <b>69</b>	3	1.23	215 <b>8</b> 344 <b>8</b>	3602 6535	173 <b>92</b> 31331	MA.	1,92	82 <b>6</b> 5 12547	250 103	2586 2553	•	5.07 4.4		1175 <b>0</b> 173 <b>29</b>
TENN KENT	44 <b>6</b> 422	3636 3336	•	2.81	1253	2013 2189	13900	4 5	2.3	463 <b>6</b> 567 <b>0</b>	111	986	:	5.0	563	6446 74 <b>6</b> 3
MISSOUR	362 353	2668 3967	5	3.23	975	2272	2672	3	1.89	4294	129	836	7	4.43	571	5841
LOUISHA	469	3419	5	1.23 3.82	1146 1792	1787 2916	9283 15562	2	1.57	2 <b>806</b> 5511	114	1666	7	4.4		4451 <b>466</b> 7
TEXAS OKLA	651 1162	55 <b>86</b> 1 <b>84</b> 17	•	3.82	2487 4439	1045	155 <b>89</b> 8 <b>65</b> l	4A 3	2.13	64 <b>6</b> 6 21 <b>8</b> 1	268 368	2 <b>080</b> 31 <b>9</b> 7	7	4.41		10124
KANSAS NEB/DAK	596 272	4494	5	3.23	1925	2532 1777	12923	MA	2.5	6330	160	1269	i.	3.8	611	1166
COL/WYO	453	4533	7	4.43	2007	1855	16437	NA 5	2,59	5651 4884	130 130	1829	. 5	3.8. 3.2	420	6976 7231
CAMPBLL	195	1471	7	4.43 2.81	54 <b>8</b>	, 931 658	3711 6274	5	2.59	2411 1513	120	1214	•	1.2		27 <b>99</b> 73 <b>19</b>
HUND	28#2 164	22425	7	1.43	12413	154 172	4929 12 <b>66</b>	NA.		1953	2145	4049   3648	5	1.2	7474	21948
POLK	2157 3696	17922	•	1.42	7004	16AB	14 199	AF	199 100 100 100 100	5887	2391 775	*142	;	4.4	411	18174
SAM YOU	263	1824	7	3.82 4.43	14119	2078 1552	18766 6248	4 MA	2.1	256 L	L184	921 <b>6</b> 524	6,	). <b>0</b> .		23421 4222
STEWART DP1 PP18	2933 1762		•	2.81 3.23	7961 5691	2736 -123		5	2,59	7684	1144	9554 4557	:	5.0	7 5800	
SEIS\$	1161 995	23202	7	4.43	14003	224	2846	MA	5.15	1154	879	1009	5	3.2	3 2039	17996
KNOX	2717	17325	i	2.81 2.81	2796 7635	3571 841	14 <b>66</b> 4 52 <b>8</b> 4	5	2.59	9249 2178	217 875	1144 7494	8	5.0	7 1186 7 4436	13145
L. WOOD MCCLFEN	774 288	8354 3181	5	3.23 3.23	25 <b>00</b> 93 <b>0</b>	3948 721	26499 4658	3	1.49	7462 1658	243 98	2514 1138	7	5.0	1076	11078
RUCKER	7 <b>99</b>	6563 9023	5	3.23	2298 1816	700	5696 1916	3	2.3 1.89	1628	325 303	1717	8	5.0	1648	5566
TCAD	1853 284	3925	7	4.43	9299	46	968	NA	4.58	211	1367	2125 7454	6	3.82 4.43	5790	5629 142 <b>9</b> 9
RRAD	58	17259 753	5	3.23 1.62	659 229	3 <b>9</b> 7	1985	A NA	2.3	12	855 6 <b>89</b>	64 <b>6</b> 3 8932	9	5.0°		500J 3254
TOTBUE	13759	274953			121664	61215	114594			138486	18856	149139			78397	338487
HWT/IDA	562	4102		4.65	2613	623	1155	6	J. 26	2011	4944	29992	5	2.6		18487
UTAH/NV ARIZONA	284 167	2325 1989		4.65	1321 777	313 232	1668 1498	•	1.26 1.26	1828 756	2613 1856	26306 13697	4	2.4	6454	8795 6117
CALIF OREGON	005 319	5893 2093	Ĭ	4.65	3743	1122	7271	7	3.74	4196	6193	40928	1	2.67	12510	26449
WASHNTN	259	2572		4.65	1483 1384	314 312	2621	7	3.74 3.74	1174	2897 2228	19975	•	2.47	3503	9813 7 <b>87</b> 4
irwin Lewis	937 3 <b>0</b> 11	8134 24731	;	4.65	4357 14 <b>001</b>	1523	18659	7	3.74 3.74	5 <b>696</b> 7 <b>9</b> 7	1686	157 9663	3	2.07	28	19681
ORD PRSIDIO	1610	12735	•	4.65	7487 730	246 174	1319	7	3.74	926 651	2641 2292	\$1863	ž	1.69	4350	12764
HUACHUC	355	1659	į	4.65	1651	476	2172	5	2.8	1333	3459	13595 22569	2	2.6	9683	5163 12669
DAAR Dabt	661 367	1562 3471	i	4.65	3074 1707	406 355	992 23 <b>0</b> 4	7	3.74 3.26	1510	2 <b>069</b> 71	6162 634	2	L.69		1006 3072
SUSTOT	9494	71962			44147	6319	36051			22456	13157	229759				142733
TOTAL	120162	911373			335894	86435	496712			217741	59416	445364			195398	749033
															MEIGHT	266007

MAINE NH/VER NH/VER MASS TONN/RE NEW YOR PENN	NCA- GINES 1145 1567 1348	15864	TPS TONE	PATE	COST	1NF3	HELSHT	TUS TONE	RATE	'I'S COST	SHAD THAT LINES WELGE		JPS Rate	UPS COST	FOTAG COST
NH/VPR MASS COMM/RE NEW YOR PENN	1567		4												
MASS TONNERS MEW YOR PENN		15078		2.64 2.64	1921 4117			;	3.74	•		8	5.07		
NEW YOR		16648	- 7	2.14	3955			6	1, 26	9		8	5.07 5.07		4137
PENM	2628 1979	24189 5514 <b>0</b>	3	2.14	5607			6	3.26	ē		8	5.87	į	5601
	5193	14131	2	1.73	15149 H784			6	1.26 1.26	•			5.67	•	
NJ/DEL	4703	32516	2	1.73	9116			ň	3.26	ï		:	5.87		
MD/IMT VA/W.VA	2097 3 <b>66</b> 5	14/45 21935	3	1.73	3628			•	3.26	0		i	5.07	ě	3626
N. CARO	36 18	22497	í	2.14	6559 65 <b>8</b> 1			\$	2.8				5.07	•	6559
S. CARO	2561	18967	•	2.64	6761			5	2.6			•	5.07 5.07		6531 67 <b>6</b> 1
OHEO HICH	2149 1519	15184	:	2.64 2.64	5673 4010			5	2.8	•		ě	5.87	ē	567
AMAIGH	3642	26768	- 7	2.64	9615			3	2.8 2.8	:		:	5.07	:	4616 9619
ILL. IISC	21 <b>68</b> 2524	18143	5	3.02	6523			4	2.47	i		;	5. <i>6</i> 7	·	6523
1 [100	2718	23 <b>821</b> 23164	5	3.02	7622 8208			5	2.8			?	4.43	•	7622
AWO	1989	13626	5	3.02	4007			4	2.8			7	4.43	:	8 2 8 8 6 9 8 7
THAGG TPV ENS	7696 4936	48 37 <b>9</b> 31 2 <b>66</b>	4	2.64	20317			5	2.8	i		í	5.07	i	20317
RUM	3159	21591	3	2.14 2.14	18563 6768			6	3.26 3.26	•		•	5.07	•	10563
H,COA	1858	28787	5	3.02	11651			5	2.8	•		,	5.07 4.43	:	67 <b>68</b> 11 <b>651</b>
TEADE SHERION	11006 2934	65469 2 <b>04</b> 17	2	1.73	19040			6	3.26	Ĭ		i	5.07	i	19040
RE.VOER	2492	15219	•	2.64 1.73	7746 4311			5	2.8 1.76			?	4.43		7746
) [ ×	4948	32539	3	1.73	8568			ī	1.26	·		i	5.87 5.87	:	4311 4566
CUSTIS CACKSON	823 2645	4474 2 <b>0</b> 761	3	2.14 2.64	1761			6	3.26	•		i	5.07	ē	1761
.EE	2463	16884	i	2.14	6983 5271			5	2.8 2.8	:		:	5.67	:	6983
PAD PAD	3147 2283	18744 16714	2 2	1.73	5444 3950			6	3.26 3.26	i		į	5.07	ě	527L 5444
UBTOT	104007	75 <b>02</b> 51			232457	•	•	•	, <del>.</del>		•	•	5.87	•	3 <b>956</b> 2324 <b>5</b> 7
LORIDA			5	3.23	•	2969	17376	NA	2.86	8320			5.67		8328
CABAMA			4	3.23		5531 4528	31146	4	2.3	12721		Ĭ	5.87	ě	12721
ISS			š	3.23	•	7963	26468 42653	A MA	2.3 1.92	18414 15174		* 7	5.67	:	10414
FINE FINT			•	2.81	•	2570	15#66	4	2.3	5911		í	4.43 5. <b>8</b> 7		5911
ISSOUR			•	2.81 3.23	•	2719	17655	5	2.59	7042		Ī	5.07	ě	7642
RKANS			ś	1.23	•	27 <b>0</b> 3 2254	12176	j 2	1.89	51 <b>09</b> 3539		7	4.43	:	5169
OUISHA Exas			•	3.82	•	3544	20647	3	1.89	6698		'n	4.43	•	3539 6698
KLA			•	3.82 3.82	:	3956 27 <b>9</b> 6	23 <b>895</b> 22 <b>26</b> 5	MA 3	2.13	8426		7	4.43	•	8426
AMSAS			•	3.23	•	3288	18686	NA	1.49 2.5	5273 622#		6	3. <b>82</b> 3. <b>82</b>	:	5273 8228
eb/dak Ol/wyo			•	3.82	•	2124	12951	HA.	3.16	6754		ě	3.82	•	6754
EM HEX			7	4.43		2438 1051	159 <b>99</b> 6925	5	2.59	6314		5	1.23	•	6314
MPBLL			4	2.41	ě	1896	14479	4	2.59	2722 43 <b>6</b> 1		3	1.23	•	2722 4361
A#SON ·)OG			7	4.43 3.82	9.	5961	49322	5	2.59	15284		5	3.23	ě	15284
ULK			i	3.82		2926 5828	26146 43563	na Na	1.99 2.19	5823 12746		. 7	4.43	•	5823
I I, PY			6	1.82	ě	4958	41981	4	2.1	16003		,	4.43 1.82	9	12746
AM HOU -	-		7	4.41 2.81	3	6713	8596	NA S	1.65	3186		,	4.43	j	3186
FINN FING			5	3.21	ŭ	2587	42325 21418	7	2.59	17387 595 <b>6</b>			5.07 5.07	:	17387 595#
LISS OFDOM			!	4.43	•	4264	34057	HA	5.15	21960		Š	1.23	•	21960
NOX			:	2.81 2.81	į	47 <b>8</b> 3 4433	21323 30103	5	2.59	123 <b>06</b> 114 <b>01</b>			5.07	:	12388
. WOOD CCLELN			5	3.23	ű	4965	37367	3	1.89	9384		7	5.07 6.43		9364
UCKER			5	3.23	4	1107	8969	4	2.3	2546		8	5.87	į	2546
ILL			6	3.82	i	1649	1 1976 1 3 <b>8</b> 58	4	1.89	4 <b>467</b> 3117		8	5.87 3.82	9	4967 3117
CAD Nad			7	4.41	•	1266	17347	NA	4.58	14683		7	4.43	š	14683
RAD			5 6	3.23 3.62	j	1098	24747 9729	4 NA	2.3 1.74	2525 13 <b>66</b>		8 7	5.47		2525
U <b>STOT</b>	J	a			-	13030		1000		276762		,	4.43	•	1300
NT/ IDA				4.65	•			6	3.26		6129 17449	5	2.8	17161	17161
TAH/NV HIZONA			9	4.65	•			6	3.26	ě	3210 30299	4	2.47	7929	7929
ALIP			i	4.65				6	3.26 3.74	:	2255 16284 8128 54884		2.47	5576	5576
MEGON			9	4.65	•			7	3.74	i	3530 23862		2.02 2.47	16402	16482 8719
ASH <b>NTN</b> Rw I N				4.65				7	3.74	•	2799 26819	4	2.47	6914	6914
DV I S			i	4.65	;			7	3.74 3.74	:	2474 18956 5184 35241	3	2.62	4997	4997
RO			•	4.65	ě			7	3.74	•	4497 35917	2	1.65	12687 7428	12667 7429
PSIDIO			:	4.65	•			7	3.74	•	2623 16062		1.651	4328	4328
AAO EAU			Ī	4.65	•			7	3.74		4296 26486 3136 10716	2	1.65	12012 5174	12012 5174
		_	•	4.65	•			•	3.26	•	<b>86</b> 3 64 <b>09</b>	4	2.47	1983	1981
	4				_	_	_			_					
JETOT	. <b>6488</b> 7 7				• 32457 L	•	•			•	ARABO TECH		•	12216	1424

норв	UPS		LT. NO	TMO												
DESTINA TION	NCAD LINES	NCAD WEIGHT	UPS	UPS RATE	UPS COST	RRAD LINES	RRAD WEIGHT	UPS	UPS RATE	UPS	SHAD LIN <b>ES</b>	SHAD WEIGHT	UPS	UPS RATE	UPS COST	TOTAL COST
MAINE NH/VER	942 1287		4	2.64 2.64	2487 3398	128 182	1256 1469	7	1.74 3.26	479 593	75 98	658 89 <b>8</b>	8	5.07 5.07	38 <i>9</i> 497	3346 4488
MASS CONM/RI	1316	13359	3	2.14	2816 4569	352 341	1896	6	3.26 3.26	1148	186	1393 1324	8	5.87	913 730	4876 6411
new yor Penw	5391 4416	29551	3 2	2.14 1.73	11537 7 <b>646</b>	1232 578	72 <b>86</b> 2 <b>89</b> 2	6	3.26 3.26	4616 1884	45 <b>6</b> 199	3789 1688	8	5.07 5.07	2312 1009	17865 10533
MD/DC	3854 1711	11531	2	1.73	6667 2968	599 291	3041 2368	6	3.26 3.26	1953 949	25# 95	1924 846	8	5.67 5.67	1268 482	9888 43 <b>96</b>
VA/W.VA N. CARO	233 <b>0</b> 2257		3	2.14	4986 4836	519 615	272 <b>0</b> 3163	5	2.8	1453 1722	216 166	1956 1230	8	5.07 5.07	1095 842	7535 7394
WICH	1561		4	2.64 2.64	3963 2991	461 265	1774 1853	5	2.8	1291 742	187 121	1768	8	5.87 5.87	94 <b>8</b> 613	62 <b>0</b> 2 4347
INDIANA ILL. WISC	2968 1512 1891	22168 14862 19886	5	2.64 3.82	7836 4366	468 458	2993 26 <b>0</b> 2	5	2.47	1288	214 196	1607 1679	8 7	5.07 4.43	1685 842	19209 6539
MINW	2115 1384	18366	5 5 5	3.02 3.02 3.02	5711 6387 4784	475 463 287	3124 2787 1684	5 5 4	2.8	1336 1128 769	158 200	1691 2017	7 7 7	4.43	786 886	7741 8482
BRAGG DEVENS	1943	1544 <b>8</b> 25 <b>66</b> 9	4	2.64 2.14	5136 9809	4027 516	10302	5	2.47 2.8 3.26	11276 1682	118 1726 216	269 14548 1624	8	4.43 5.87 5.87	523 8751 1865	6015 25136 11736
DRUM	2681 3052	19156 23255	3	2.14	5737 9217	361 552	2687 375#	6	3.26	981 1546	177 254	1748	8 7	5.07 4.43	897 1125	7616 11888
mrade Sheridw	9164 2375	52238 15959	2	1.73	15854 6278	1231 396	8259 2863	6	3.26	4813 1189	611 163	4972 1655	8 7	5.07	3098 722	22965 8181
BELVOIR	2 <b>090</b> 4154	12865 27 <b>0</b> 53	2	1.73	3616 7186	279 586	1577 33 <b>06</b>	6	3.26 3.26	886 1891	132 214	777 2179	8	5.07	669 1885	5165 18162
EUSTIS Let	121 2056	1152	3	2.14	259 44 <b>00</b>	543 292	1895 2427	6	3.26	1778	159 115	1427 125 <b>6</b>	8	5.07 5.07	8 <b>6 6</b> 5 8 3	2835 58 <b>00</b>
TOAD LEAD	2565 76	428 <b>8</b> 592 <b>0</b>	2	1.73	4437 131	294 14 <b>6</b> 3	13 <b>84</b> 5 <b>6566</b>	6	3.26 3.26	958 4574	280 864	1411 4228		5.07 5.07	1468	6856 87 <b>8</b> 2
SUBTOT	72836	533468			159374	18851 AMAD	113459 AMAD			54425	7926	63976			39461	253266
	453	4000	_			CIMES	WEIGHT						_			
FLORIDA GEORGIA S. CARO	483 666 424	4822 5887 2645	5 4 4	3.23 2.81 2.64	1362 1871 1119	2282 4686 1974	10588 22997 14921	3 2 3	1.89 1.57 1.89	4313 7231 3731	224 259 163	1916 2262 1481	•	5.07 5.07 5.07	1136 1313 826	6758 18416 5677
ALABAMA MISS	668 1865	649 <b>6</b> 8769	5	3.23	2158 344 <b>8</b>	36 <b>02</b> 6535	17392 31331	2	1.57	5655 12351	258 363	2586 2553	•	5.07 4.43	13 <b>68</b> 1342	9121 17133
TEMM	446 422	3636 3336	4	2.81	1253 1186	2013 2189	16444 13966	3	1.89	3865 4137	111	986 619	i	5.87	563 548	5621 5871
JACKSON CAMPBLL	426 195	3163 1471	4	2.64 2.81	1125 548	2105 650	165 <b>69</b> 6274	3	1.89	3978 1244	114 1643	1009 6734	1	5.07	578 5288	5681 7 <b>686</b>
STEWART BENNING	2833 1762	20007 13110	5	2.81 3.23	79 <b>61</b> 5691	2736 323	12 <b>684</b> 3743	3	1.89	5171 507	1144 562	9554 4557	8	5.87 5.87	58 <b>00</b> 25 <b>3</b> 5	18932 8744
GORDON	995 2717	5515 17325	1	2.81	2796 7635	3571 841	14664 5284	3	1.89	6749 1589	217 875	1144 7494	. 8	5.07 5.07	1100 4436	1 <b>8645</b> 13661
HCCLELM RUCKER ANAD	288 789 284	3181 6563 17259	5 5 5	3.23 3.23 3.23	93 <b>8</b> 2298 659	721 768	465# 5696	2 2 2	1.57	1112	98 325	1138	8	5.07	497 1648	2559 5 <b>0</b> 49
SUBTOT		123259	•	3.23	41964	39 349 <b>0</b> 3	192162		1.57	61 62767	855 6599	64 <b>6</b> 3 52153	8	5.97	4335 33263	5055 137994
						rrad Lines	RRAD WEIGHT						-			
MISSOUR	302 353	2668 3967	5	3.23	975 1140	2272 1787	8678 9283	3.	1.89	4294 28 <b>0</b> 6	129	93 <b>0</b> 1138	7	4.43	571 5 <b>65</b>	5841 4451
LOUISNA TEXAS	469 651	3419 55 <b>06</b>	6	3.82 3.82	1792 2487	2916 3 <b>845</b>	15562 15569	Ĭ AM	1.89	5511 6486	159 266	1666 2886	7 7	4.43	704 1152	8007 19124
okla Kansas	1162	16417	6 5	3.82	4439 1925	- 1268 2532	8651 12923	3 MA	1.89	2381 6330	368 168	3197 1269	6 6	3.82 3.82	14 <b>66</b> 611	8226 8866
NEB/DAK COL/WYO	272 453	2 <b>925</b> 4533	6 7	3.82 4.43	1939 2967	1777 1855	18279 18437	<b>на</b> 5	3.18 2.59	5651 48 <b>0</b> 4	75 13 <b>6</b>	647- 1929	6 5	3.82 3.23	287 429	6976 7231
NEW MEX Carson	2892	22425	7	4.43	12413	931 754	3711 8 <b>029</b>	5 5	2.59 2.59	2411 1953	126 2345	3214 18868	5	3.23 3.23	388 7574	2799 2194 <b>6</b>
HOOD HOOD	163 2357		6	3.82	623 9 <b>00</b> 4	372 2688	18399	AH AH	2.19	74 <b>0</b> 5887	775	196 <b>88</b> 7342	7	4.43		18324
SAM HOU BLISS	3696 263	1824	6	3.82	14119	2078 1552	18766 6248	NA	1.65	4779 2561	1184 112 979	323 <b>0</b> 524	3	3.82	4523 496	23421 4222
L. WOOD	3161 -74 299	23202 8154 9023	7 5 6	4.43 3.23 3.82	14903 2500 3816	224 3948 347	2946 26499 1913	NA 3 3	5.15 1.39 1.39	1154 7462 656	243 363	8 <b>0</b> 09 2514 2125	5 7 6	3.23 4.43 3.82	2839 L#76 1157	17996 11038 5629
CCAD	1853	8925 753	7 6	4.43	1209	46	968 44	NA NA	4.58	211	1307	7454 8932	7	4.43	5790 3012	14289
SUBTOT	-	157562			81884	30391	173862	-		66489	11734	99476				194511
MNT/IDA UTAH/NV	562 284	4192 2325	8	4.65 4.65	2613 1321	623 313	3355 1668	6 6	3.26 3.26	2031 1020	4944 2613	29992 26306	5 4	2.8 2.47	13843 6454	18487 8795
ARIZONA CALIF	167 805	1889	8	4.65	777 3743	232	1498 7271	6 7	3.26 3.74	756 4196	1856 6193	13697 40926	4 3	2.47	4584 12510	6117 2 <b>9449</b>
OREGON WASHNTN	319 259	2093 2572	8	4.65	1483 1204	314 312	1814	7	3.74 3.74	1174 1167	2897 2228	19975 22226	•	2.47	715 <b>6</b> 5 <b>50</b> 3	9813 7874
irw in Lawis	937 3 <b>6</b> 11	8134 24731	8	4.65	4357 14 <b>66</b> 1	1523 213	19659 847	7	3.74 3.74	5696 797	14 1886	157 9663	3	2.82 2.47	28 4644	1 <b>0081</b> 19441
ORO PRSIDIO	1619	12735	8	4.65	7467 736	246 174	1319 931	7	3.74 3.74	92 <b>6</b> 651	2641 2292	21863 13595	2	1.65	435 <b>8</b> 3782	12764 5163
HUACHUC	355 661	1659 1562	8	4.65	1651 3074	476 486	2172 992	5 7 6	2.8 3.74	1333	3459 2069	8162 614	2	1.65	9685 3414	12669 8 <b>006</b>
TEAD SUBTOT	367 9494	3471 719 <b>6</b> 2	8	4.65	17 <b>07</b>	365 6319	23 <b>94</b> 36 <b>8</b> 51	6	3.26	1198	71 33157	634 229759	•	2.47	175 76136	3072 142733
TOTAL		885751			327369						59410				195398	728498
														L JATO W JATO		266 <b>00</b> 7 1.85E6

HODE	UPS	A	LT. NO	THREE												
DESTINA TION	ncad Lines	NCAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	rrad Lines	RRAQ WEIGHT	UPS ZONE	UPS RATE	UPS COST	Shad Lin <b>es</b>	SHAD WEIGHT	UPS ZONE	UPS RATE	UPS COST	TOTAL COST
MAINE NH/VKR MASS	942 1287 1316	13958 12669 13359	4	2.64 2.64 2.14	2487 3398 2816	128 182 352	125 <b>6</b> 1469 1896	7 6 6	3.74 3.26 3.26	479 593 1148	75 98 188	658 89 <b>6</b> 1393	1 9 8	5.87 5.87 5.87	388 497 913	3346 4488 4876
CONN/RI NEW YOR	2135 5391	26978 44685	3	2.14 2.14	4569 11537	341 1232	1887 7286	6	3.26 3.26	1112	144 456	1324 3789	8	5.87 5.87	73 <b>8</b> 2312	6411 17865
MD/DC MD/DC MD/DC	4416 3 <b>65</b> 4 1711	29551 27551 11531	2 2 2	1.73 1.73 1.73	7640 6667 2960	578 599 291	2892 3841 2368	6 6 6	3.26 3.26 3.26	1884 1953 949	199 25# 95	1688 1924 846		5.07 5.07 5.07	1009 1268 482	10533 9888 4390
VA/W.VA N. CARO OHIO	2330 2257 1561	17259 18164 11642	3 3 4	2.14 2.14 2.64	4986 4838 3963	519 615 461	272 <b>6</b> 3163 1774	5 5 5	2.8 2.8 2.8	1453 1722 1291	216 166 187	1956 1238 1768	1	5.87 5.87 5.87	1895 842 948	7535 7394 62 <b>82</b>
mich Indiana	1133 2968	114 <b>84</b> 2216 <b>8</b>	4	2.64 2.64	2991 7836	265 466	1853 2993	5 5	2.8	742 1288	121 214	1100	8	5. <i>8</i> 7 5. <i>8</i> 7	613 1085	4347 10209
ill. Wisc Miw	1512 1891 2115	14662 19666 18366	5 5 5	3.02 3.02 3.62	4566 5711 6387	458 475 463	2662 3124 2787	4 5 5	2.47 2.8 2.8	1131 1336 1128	198 158 206	1679 1691 2017	7 7 7	4.43 4.43 4.43	842 786 886	6539 7741 8482
Iona Bragg	1584 1943	11133 15446	5	3.82	4784 5130	287 4827	1684 18382	4 5	2.47 2.8	7 <b>69</b> 11276	118 1726	14548	7	4.43 5.67	523 8751	6015 25156
NCCOA DUM DEAGNE	4210 2681 3052	25669 19156 23255	3 3 5	2.14 2.14 3.02	9 <b>669</b> 5737 9217	516 301 552	3967 2687 3758	6	3.26 3.26 2.8	1682 981 1546	210 177 254	1624 1748 1782	8 8 7	5.07 5.07 4.43	1665 897 1125	11756 7616 11888
MEADE SHERIDM BELVOIR	9164 2375 2 <b>890</b>	52238 15959 12865	2 4 2	1.73 2.64 1.73	15854 6278 3616	1231 396 278	8259 2863 1577	6 5 6	3.26 2.8 3.26	4613 1169 666	611 163 132	4972 1655 777	7	5.67 4.43 5.67	3098 722 669	22965 8181 5165
OIX EUSTIS	4154	27653 1152	2	2.14	7186 259	586 543	3386 1895	6	3.26 3.26	1891 1776	214 159	2179 1427		5. <i>8</i> 7 5. <i>8</i> 7	1085	10162 2835
ler Toad Lead	2056 2565 76	13201 4288 5920	3 2 2	2.14 1.73 1.73	4498 4437 131	292 294 1483	2427 13945 6566	5 6	2.8 3.26 3.26	918 958 4574	115 288 864	1256 1411 4228		5.87 5.87 5.87	583 1468 4876	5888 6856 8782
SUBTOT	72836	533888			159374		113459			54425	7928	63976	٠			253266
						anad Lines	MEICHT WWD									
FLORIDA GEORGIA S. CARO	483 666 424	4822 5887 2645	5 4 4	3.23 2.81 2.64	1302 1071 1119	2282 4666 1974	16588 22997 14921	3 2 3	1.89	4313 7231 3731	224 259 163	1916 2262 14 <b>6</b> 1	i	5.67 5.67 5.67	1136 1313 826	. 4750 19416 5677
ALABAMA REIM WEST	668 1863 446	6498 8769 3636	5 3 4	3.23 3.23 2.81	2158 3448 1253	3602 6535 2013	17392 31331 60444	2 3 3	1.89	5655 12351 3005	258 303 111	2586 2553 986	7	5.07 4.43 5.07	1366 1342 563	9121 17133
KENT JACKSON	422 426	3336 3163	4	2.61	1186	2189 2185	13900	3	1.89	4137 3970	114	1089		5.67	548 578	5621 5871 5681
Campbel Stewart Berning	195 2033 1762	1471 26087 13116	4	2.81 2.81 3.23	548 7961 5691	658 273 <b>6</b> 323	6274 12684 3743	3 3 2	1.89	1244 5171 507	1643 1144 562	6734 9354 4557		5.67 5.67 5.67	52 <b>08</b> 5 <b>800</b> 2545	7 <b>989</b> 1 <b>8932</b> 8744
GORDON KNOX HCCLELN	995 2717 288	5515 17325 3181	4	2.81 2.81 3.23	2796 7635 938	3571 841	14664 5284	3	1.89	6749 1589	21 <i>7</i> 875	1144 7494	8	5.07	1100	18645 13661
SUCKER ANAD	7 <b>09</b> - 2 <b>0</b> 4	6563 17259	5	3.23	22 <b>96</b> 659	721 7 <b>68</b> 39	4658 5696 1085	2 2 2	1.57 1.57 1.57	1132 1112 61	98 325 855	1130 1717 6403	8 6	5.07 5.07 5.07	497 1648 4335	2559 5849 5855
SUBTOT	14223	123259			41964	349#3	192162	•		62767	6599	52153			33263	137994
							RRAD WEIGHT						•			
missour Arkans Louisna	392 353 469	266 <b>8</b> 3967 3419	5 6	3.23 3.23 3.82	975 114 <b>0</b> 1792	2272 1767 2916	8678 92#3 15562	3 2 3	1.89 1.57 1.89	4294 2 <b>886</b> 5511	129 114 159	83 <b>6</b> 113 <b>8</b> 1666	7 7 7	4.43 4.43 4.43	571 505 704	5841 4451 8007
texas Okla Kansas	651 1162 596	5596 19417 4494	6 6 5	3.82 3.82 3.23	2487 4439 1925	3845 1268 2532	15569 8651 12923	AN E An	2.13 1.89 2.5	6486 2381 6330	260 368 160	288 <b>6</b> 3197 12 <b>69</b>	7 6 6	4.43 3.82 3.82	1152 14 <b>66</b> 611	19124 8226 8866
NFB/DAR HOOD	272 163	2025 3338	6	3.82 3.82	1039 623	- 592 372	342 <b>6</b> 32 <b>66</b>	HA HA	3.16 1.99	1864 748	75 2391	647 196 <b>68</b>	6 7	3.82	287 1 <b>8592</b>	32 <b>09</b> 11955
POLK RILEY SAM HOU	2357 3696 263	17822 24887 1824	6 6 7	3.82 3.82 4.43	9 <b>884</b> 14119 1165	2688 2978 1552	18399 18766 6248	NA ' 4 NA	2.19 2.3 1.65	5887 4779 2561	775 1184 112	7342 8230 524	7 6 7	4.43 3.82 4.43	3433 4523 496	18324 23421 4222
BLISS L. WOOD SILL	3161 774 999	23202 0354	7 5	4.43	14003 2500	224 3948	2846 26499	NA 3 3	5.15	1154 7462	879 243	89 <b>69</b> 2514	5 7	3.23	2839 1076	17996 11038
CCAD RPAD	1853 6 <b>0</b>	9 <b>823</b> 9925 753	6 7 5	3.82 4.43 3.82	3816 82 <b>9</b> 9 229	347 46 7	191 <b>0</b> 968 44	NA NA	1.89 4.58 1.74	656 211 12	193 1387 689	2125 7454 3932	6 7 7	3.82 4.43 4.43	1157 579 <b>8</b> 3 <b>8</b> 12	5629 14289 1254
SUBTOT	17131	130544			57465	25666	144832			531 <b>53</b>	3139	76365			38156	158774
						TEAD LINES W	TEAD EIGHT									
COL/WYO NEW MEX CARSON	453 28 <b>0</b> 2	4533 22425	7 7 7	4.43 4.43 4.43	2007 3 12413	1855 931 754	10437 3711 8429	4	2.3 2.3 2.3	4267 2141 1734	130 120 2345	1929 3214 18868	5 5 5	3.23 3.23 3.23	420 388 7574	6693 2529
DAK	2042		,	4.43	12413	1185	6853	5	2.59	3869			•	3.23	/3/4	21721
						RRAD LIN <b>ES</b> W					CINES N					
MNT/IDA UTAH/NV ARIZONA	562 284 167	4102 2325 1089	8 8	4.65 4.65 4.65	2613 1321 777	623 313 232	3355 1668 1498	6 6	3.26 3.26 3.26	2031 1020 756	4944 1367 1856	29992 13153 13697	3 2 5	2.14 1.73 3.92	18589 2266 5695	15224 4601 7138
HUACHUC TEAD	355 367	1659 3471	•	4.65	1651 1767	476 365	2172 23 <b>6</b> 4	5	2.8 3.26	1333 1190	3459 71	22569 634	. 2	3.54 1.73	12245 123	15228 3#19
SURTOT	4990	39684			22487	6734	40027			17542		183156			39195	76155
								_			SHAD LINES N	LIGHT				
CAGIF OREGON WASHNTH	8 <b>6</b> 5 319 259	5893 2893 2572		4.65 4.65 4.65	3743 1483 1284	1122 314 312	7271 1814 2021	7 7 7	3.74 3.74 3.74	4196 1174 1167	6193 2897 2228	40920 19975 22226	3 4 4	2.92 2.47 2.47	12510 7156 5503	20449 9013 7074
agayan Wimii	937	<b>0134</b>	•	4.65	4357	1523	10659	7	3.74	5696	13 <b>86</b> 14	13153	2	1.65 2.62	2155 28	2155 10001
PREIDIO ORD DRIBIO DRIB	3011 1610 157	24731 12735 1536		4.65 4.65 4.65	14861 7487 738	213 246 174	847 1319 931	7 7 7	3.74 3.74 3.74	797 920 651	1886 2641 2292	9663 21863 13595	4 2 2	2.47 1.65 1.65	4644 435 <b>0</b> 3782	19441 12764 5163
SAAD	661 7759	1562 59256	•	4.65	3674	496	992 25854	7	3.74	1516	2669	8162	2	1.65	3414 43549	95747
TOTAL	116933				36079		25854 516334			204604					193624	721930
			•					1.00							ines Eight	266007 L.05R6

Column	DESTINA TION	MCAD LINES	NCAD WEIGHT	UPS	UPS RATE	UPS	RPAO LINES	READ WEIGHT	UPS	UPS	UPS	SHAD	SHAD WEIGHT	UPS	UPS	UPS	TOTAL
Color	MAIME HH/VER MASS COMM/RI HEM YOR PENN NJ/DEL HD/DC VA/M.VA M. CARO BRAGG DEVENS DEVENS DEVENS DEVENS COMM MEADE BELVOIR CIX KUSTIS	942 1287 1316 2135 5391 4711 2338 1711 2338 4218 268 2698 4154 121	13959 13359 24985 29551 27551 17259 18140 25469 52230 12865 27653 1152	4 4 3 3 3 3 2 2 2 2 3 3 3 3 2 2 2 2 2 2	2.64 2.64 2.14 2.14 2.16 1.73 1.73 2.14 2.64 2.14 1.73 1.73 1.73	2487 3398 2816 4569 11537 7648 6667 2968 4906 5138 9889 5138 9889 5138 3616 7186 259	128 182 352 341 1232 599 291 519 615 4027 516 381 1231 278 583	1256 1469 1896 1896 17286 2892 3946 2728 3163 2736 3967 26879 1577 31895	7 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	3.74 3.26 3.26 3.26 3.26 3.26 2.8 2.8 3.26 3.26 3.26	479 593 1148 1112 4816 1953 949 1453 1722 11276 1682 981 4813 886 1891	75 98 100 144 456 199 250 95 216 1726 177 611 132 214	658 898 1393 1324 3789 1688 1924 846 1956 1238 14548 1648 1748 4972 7277	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	5.87 5.87 5.87 5.87 5.87 5.87 5.87 5.87	497 913 738 2312 1009 1268 482 1095 842 8751 1065 897 3069 1085	4488 4876 17865 10533 9888 4398 7535 72394 25156 11756 7616 22965 5165
Color   Colo	TOAD	2565	4288	2	1.73	4437	294	13045	6	3.26	958	115 288	1256 1411		5.87 5.87	583 1460	5800 6056
CHIEF WEIGHT    CHIEF WEIGHT   CHIEF	SUBTOT		· -			107656	14294	>6463			44152	6315	49868			32017	183818
Tell	OHIO			2	1.73	2597	461	1774	•	2.8	1201	107	1760				4025
Company   Comp	MICH INDIANA ILL. MISC MINN IONA MCCOY SHERIDN RENT CANPULL KNOX	1133 2968 1512 1891 2115 1584 3052 2375 2189 658 641	11484 22168 14862 19866 18366 11133 23255 15959 3336 1471 17325	3 2 3 4 5 4 5 3 2 2	2.14 1.73 2.14 2.64 3.82 2.64 3.82 2.14 1.73	2425 5135 3236 4992 6387 4182 9217 5883 3787 1138 1455	265 468 478 475 483 287 552 396 422 195 2717	1853 2993 2602 3124 2787 1684 3750 2863 13900 6274 5284	5 4 5 5 4 5 3	2.8 2.47 2.8 2.8 2.47 2.8 2.8 1.89	742 1288 1131 1336 1128 789 1546 1169 798	121 214 198 158 288 118 254 163 188	1100 1607 1679 1691 2017 989 1702 1655 619	77777	5.07 5.07 4.43 4.43 4.43 4.43 4.43 5.07 5.07	613 1005 842 700 806 523 1125 722 548 5280	3788 7588 5289 7822 8482 5413 11888 6913 5132 6795
Comparison   Com	SUSTOT	WCAD	NCAD			49633	AMAD	AMAD			16575	3631	28955			17716	83924
## CARDO #20 14211 4 2-64 1119 1792 2868 3 1.89 27711 257 1462 8 3.89 1222 1869 127 1461 128		403	4022				2282	16588									
Subton   1889   126749	S. CARO ALABAMA MISS TEMM JACKSON STEWART BENNING GORDON MCCLELID RUCKER	424 668 1065 446 426 2833 1762 995 288 709	14921 6498 8769 3636 16589 28887 13118 5515 3181 6563	4 5 4 4 5 4 5 5	2.64 3.23 3.23 2.81 2.64 2.81 3.23 2.81 3.23	1119 2158 3440 1253 1125 7961 5691 2796 930 2290	1974 3662 6535 2013 2105 2736 323 3571 721 769	2645 17392 31331 16444 3163 12684 3743 14664 4656 5696	3 3 3 3 2 3 2 2 2	1.89 1.57 1.89 1.89 1.89 - 1.89 1.57 1.89 1.57	3731 5655 12351 3865 3978 5171 507 6749 1132 1112	163 258 363 111 114 1144 562 217 98	1481 2586 2533 986 1889 9554 4557 1144 1138 1717	9 8 7 8 8 8 8	5.87 5.87 4.43 5.87 5.87 5.87 5.67 5.67 5.67	826 1388 1342 563 578 5888 2545 1166 497 1648	5677 9121 17133 5621 5681 18932 8744 18645 2559 5849
NESSOUR 382 2668 5 3.23 975 272 8678 1 1.89 4224 129 838 7 4.43 571 5841  ARRAMS - 353 1967 5 3.23 1106 1797 9283 - 1.57 2886 111 1116 7 4.43 575 54631  COUISMA 469 3419 6 3.82 2487 1865 15589 MA 2.13 2486 113 116 7 4.43 585 4651  TEXAS 651 5366 6 1.82 2487 1865 15589 MA 2.13 2486 113 117 6 1.82 1824  COLA, MIRISTON 1872 4839 1268 8511 3 1.89 1281 1386 189 7 4.43 1132 1824  MERION 572 4835 1836 6 3.82 2487 1865 15589 MA 2.13 2486 1139 7 6 4.83 1132 1824  MERION 572 4835 1836 6 3.82 2487 1865 1839 MA 2.13 2486 1139 6 6 3.82 2487 1866 1866 1866 1866 1866 1866 1866 18	SUBTOT	10089	126749			32595		_			55797	4573	37306		•.		
ARRANS - 353 3947 5 3.22 1148 1797 9723 - 2 1.57 2286 115 115 7 4.43 375 887 115 115 115 7 4.43 375 887 115 115 115 7 4.43 375 887 115 115 115 7 4.43 375 887 115 115 115 7 4.43 375 887 115 115 115 7 4.43 375 887 115 115 115 7 4.43 375 887 115 115 115 7 4.43 115 115 115 115 115 7 4.43 115 115 115 115 115 115 115 115 115 11	Missons	349	1000				LINES	WEIGHT						•			
TEAD	ARKANS LOUISMA TEXAS OKLA KAMSAS NEB/DAK HOOD POLK RILEY SAM HOU BLISS L. WOOD SILL CCAD	- 353 469 651 1162 596 272 163 2357 3696 263 3161 774 999 1853	3967 3419 5586 15417 4494 2625 3338 17625 24867 1824 23282 8354 9623 3925	5666556667756?	3.23 3.82 3.82 3.82 3.82 3.82 3.82 4.43 4.43 3.23 3.82 4.43	1148 1792 2487 4439 1925 1839 623 9884 14119 1165 14883 2588 3289	1787 2916 3845 1268 2532 372 2688 2878 1552 224 3948 347 46	9283 15562 15583 16531 12923 3426 1298 18399 16766 6248 2846 26499 1918	2 3 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1.57 1.89 2.13 1.89 2.5 3.18 1.99 2.19 2.3 1.65 5.15 1.89 4.58	2886 5511 6486 6338 1884 7487 42561 1154 7462 656 211	114 159 268 368 75 2391 775 1184 112 879 243 363 1367	1138 1666 2888 3197 1269 647 19688 7342 8239 524 8889 2514 2514	7 7 7 6 6 6 7 7 6 7 5 7 6 7	4.43 4.43 3.82 3.82 4.43 4.43 3.82 4.43 3.82 4.43	505 704 1136 611 287 10592 3413 4523 496 2839 1076 1157 5790	4451 8667 18124 8266 3289 11955 18324 23421 #222 17996 11038 5629 14209
CALIF   885   5893   8   4.65   1787   185   1287   185   1288   15224   1288   1880	SUSTOT	17131	130544			67465					53153	9139	76365				
NEW MEX CARSON 2002 22425 7 4.43 6 931 3711 4 2.3 2141 120 3214 5 3.23 108 2529 CARSON 2002 22425 7 4.43 12413 754 8029 4 2.3 1734 2345 10860 5 3.23 7574 21721 1185 6633 5 2.59 3069	101 /440	463	4822				LINES W	EIGHT									
RRAD RRAD CLINES WEIGHT CLINES MEIGHT  HNT/IDA 562 4102 8 4.65 2613 623 1335 6 3.26 2831 4944 29992 1 2.14 18586 15224 173 284 2949 2 1 2.16 18586 15224 173 284 2949 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NEW MEX Carson			7	4.43	4	931 754	3711 8 <b>029</b>	4	2.3	2141 1734	126	3214	5	3.23	388	2529
HNT/IDA 562 4182 8 4.65 2613 623 1355 6 3.26 2831 4944 29992 3 2.16 18588 15224 UTAN/MY 284 2325 8 4.65 1321 313 1668 6 3.26 1828 1387 13133 2 1.73 2268 4661 ARIZOMA 167 1889 8 4.65 777 232 1498 6 3.26 756 1856 13697 5 3.82 5685 7138 HUACHUC 355 1659 8 4.65 1771 232 1498 6 3.26 756 1856 13697 5 3.82 5685 7138 18228 TEAD 367 3471 8 4.65 1787 365 2304 6 3.26 1196 71 614 2 1.73 123 3819 2328							RAD	RRAD	•	2.37							
CALIF   085   5893   8   4.65   3743   1122   7771   7   3.74   4196   6193   48928   3   2.82   12518   28449	UTAH/WV ARIZOWA HUACHUC	284 167 355	2325 1 <b>089</b> 1659		4.65 4.65 4.65	2613 1321 777 1651	623 313 232 476 165	3355 1668 1498 2172	6 6 5	3.26 3.26 2.8	2031 1020 756 1333	4944 1367 1856 3459	29992 13153 13697 22569	2 5 6	1.73 3.92 3.54	2268 5685 12245	4681 7138 15228
CALIF 885 5893 8 4.65 3743 1122 7271 7 3.74 4196 6193 48928 3 2.82 12518 28449 OREGON 119 2893 8 4.65 1483 314 1814 7 3.74 1174 2897 19975 4 2.47 7156 9813 MARHWYR 259 2572 8 4.65 1284 312 2821 7 3.74 1167 2228 22226 4 2.47 7556 9813 MARHWYR 259 2572 8 4.65 1284 312 2821 7 3.74 1167 2228 22226 4 2.47 7556 9813 MARHWYR 937 8134 8 4.65 1488 1312 2821 7 3.74 1167 2228 22226 4 2.47 75593 7874 MARHWYR 937 8134 8 4.65 14881 213 847 7 3.74 5896 14 157 3 2.82 28 18881 12818 3811 24731 8 4.65 14881 213 847 7 3.74 797 1888 9663 4 2.47 4644 19441 ORD 1618 12735 8 4.65 7487 246 1319 7 3.74 797 1888 9663 4 2.47 4644 19441 ORD 157 1536 8 4.65 7487 246 1319 7 3.74 928 2641 21863 2 1.65 4358 12764 PRRSIDIO 157 1536 8 4.65 7387 174 931 7 3.74 651 2292 13595 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 406 992 7 3.74 1518 2869 8162 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 406 992 7 3.74 1518 2869 8162 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 406 992 7 3.74 1518 2869 8162 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 406 992 7 3.74 1518 2869 8162 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 406 992 7 3.74 1518 2869 8162 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 406 992 7 3.74 1518 2869 8162 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 406 992 7 3.74 1518 2869 8162 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 406 992 7 3.74 1518 2869 8162 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 406 992 7 3.74 1518 2869 8162 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 406 992 7 3.74 1518 2869 8162 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 406 992 7 3.74 1518 2869 8162 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 406 992 7 3.74 1518 2869 8162 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 406 992 7 3.74 1518 2869 8162 2 1.65 3782 5163 SAAD 661 1562 8 4.65 3074 5163 SAAD 661 1562 SAAD 661 1562 8 4.65 3074 5163 SAAD	SUBTOT	4996	39604			22467		48627			17542					39195	76155
OREGON 119 2093 8 4.65 1483 314 1816 7 3.74 1174 2897 19975 4 2.47 7156 9813 MARMHUTB 259 2572 8 4.65 1284 312 2821 7 3.74 1167 2228 222226 4 2.47 5593 7874 1804 1804 1805 1805 1805 1805 1805 1805 1805 1805			5893		4.65	3741	1122	7271	,	3.74		CINES W	EIGHT	,	2 42	13616	38440
100   101	WASHWIN WEVADA	259	2572	•	4.65	1483	314	1814	7	3.74	1174	2097 2228	19975	4	2.47	7156 5583	9613 7874
SUBTOT 7759 59256 36079 4310 25854 16119 21520 149714 43549 95747  TOTAL 117287 911373 8 89310 490712 203337 59410 445364 193624 709801 TOTAL LINES 266007	LMIS ORD PRSIDIO	3011 1610 157	24731 12735 1536	1	4.65 4.65 4.65	14001 7487 736	213 246 174	847 1319 931	7 7 7	3.74 3.74 3.74	797 928 651	14 1886 2641	157 9663 21863	3 4 2	2.62 2.47 1.65	28 4644 4358	1 <b>000</b> 1 19441 127 <b>64</b>
TOTAL 117287 911373 8 89318 498712 283337 59418 445364 193624 789881 TOTAL LINES 266887				•	4.65			_	7	3.74	1518	2869	8162			3414	1006
160	TOTAL 1	.17287 9	911373		•		89318 (			;					IJ JAT	93624 70 NES 20	89881 66887

HODE	JPS		LT. NO	FIVE	MO SIX											
ANITESO MOIT	SHIAD UINES	NCAD WEIGHT	IIPS ZONK	UPS RATE	UPS COST	PPAU Lines	HHAD METGHT	IPS ZONE	"PS PATE	HPS COST	SHAD LINES	. SHAD WEIGHT	UPS	UPS RATE	UPS COST	TOTAL
HAINE NH/VER NASS COMM/RI NEM YOR PERMI NJ/DEL NO/OC VA/M.VA N. CARO BRAGG DEVENS DRUM RELADE BELVOIR DRUT EUSTIS LES TOAD LEAD	942 1287 13135 5391 4416 3854 1711 2338 2417 1943 4218 2681 9164 121 2856 2565 76	12669 13359 20978 44005 29551 27551 11531 17259 10104 15440 25669 19156 52236 12065 27053 1152 14206 5920	4 3 3 2 2 2 2 3 3 3 3 3 2 2 2 2 2 2 2 2	2.14 1.71 1.73	3398 2816 4569 11537 7648 6667 2968 4986 4830 5138 9889 5737 15854 3616 7186 259	128 182 152 121 121 121 129 129 161 15 4827 121 1231 278 143 294 1493	1256 1469 1896 1897 7286 2692 3961 2388 2729 3163 3967 2867 8259 1577 3186 1895 2427 3267 3267 3267 3267 3267 3267 3267 32	7 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	3.74 3.26 3.26 3.26 3.26 3.26 2.8 2.8 3.26 3.26 3.26 3.26 3.26 3.26 3.26 3.26	479 593	75 98 180 144 456 199 250 250 216 1726 210 132 214 159 115 200 804	658 898 1393 1324 3789 1688 1956 1239 14548 1624 1748 4972 777 2179 1427 1256	3 4 8 8 8 8 8 8 8 8 8	5.97 5.87 5.87 5.87 5.87 5.87 5.87 5.87 5.8	3497 913 730 23112 1009 1260 402 1095 842 1095 847 1095 407 3096 649 1085 848 1487 4076	3146 4408 4676 6411 17865 16533 9888 4398 7538 7538 1756 22156 11756 7616 22963 5165 16162 2435 3886 6856 6782
TOTEUR	LBDA	186619 CBDA			107650	14294	16681			44152	6315	49868			32617	163618
OHIO HICH INDIAMA ILL. HISC HISS IOMA HCCOY SHERION KENT CANPELL ENGR	1501 1133 2968 1512 1891 2115 1584 3052 2375 2109 658 641 21819	MEIGHT  11642 11404 22162 14062 14062 14066 161362 11132 123255 15939 1316 1471 17725 169261  MCAD MEIGHT	2 3 2 2 3 4 5 5 3 2 2 2 2	1.73 2.14 1.73 2.14 2.64 3.62 2.64 1.73 1.73	2597 2425 5133 3136 4992 6307 4102 9217 5403 1130 1455	461 265 468 475 403 207 332 396 422 195 2717 7091 AMAD CIMER	1774 1851 2993 2682 3124 2787 1684 3758 2663 13968 6274 5284 48828 AMARO WEIGHT	55 64 55 55 33 3	2.8 2.4 2.8 2.47 2.8 2.47 2.8 2.89 1.89	1291 742 1288 1131 1338 1128 789 1546 1189 798 369 5135	187 121 214 198 158 200 118 254 163 108 1043 875	1768 1100 1607 1679 1691 2017 009 1702 1655 619 6734 7494	8 8 7 7 7 7 7 8 8 8 8	5.87 5.87 5.87 4.43 4.43 4.43 4.43 5.87 5.87	946 613 1805 642 706 606 523 1125 722 548 528 6036	4836 3788 7588 5289 7822 8482 5413 11888 6913 5132 6795 11826
FLORIDA GEORGIA	483 666	4622 5007	5	3.23 2.61	1362	2292 4606	10500	j	1.09	. 4313	224	1916	•	5.07	1136	6750
S. CARO ALABAMA HISS TEMM JACKSOM STEMART BEMING GORDON MCCLELM RUCKER ANAO	424 446 1065 446 426 2033 1762 995 208 709 204	14921 6498 8769 3636 16589 26687 13118 5915 3101 6563 17259	4554455	2.64 3.23 2.61 2.64 2.61 3.23 2.61 3.23 3.23	1119 2158 3440 1253 1125 7961 5691 2796 930 2290 659	1974 3602 6335 2013 2105 2736 323 3571 721 708	22997 2649 17392 31331 18444 3163 12504 3743 14664 4650 5696 1605	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	1.87 1.89 1.37 1.89 1.89 1.89 1.57 1.89	7231 3731 12351 3005 3970 5171 507 6749 1132 1112	259 163 250 363 111 114 1144 562 217 90 325	3262 1401 2506 2503 906 1009 9554 4557 1144 1138 1717 6403	8 8 7 8 8 8 8	3.07 5.07 5.07 4.43 5.07 5.07 5.07 5.07 5.07	1313 826 1398 1342 578 578 5886 2545 1166 497 1640 4335	10016 5677 9121 17133 5621 5481 10932 4744 10645 2559 5049
FOTSUS	14669	126749			32595		141082			55797	4573	37386			2299L	111303
-							WEIGHT									
MISTOUR ARKAMS LOUISMA TEXAS ORLA HOOD POLK SAM HOU BLISS L. WOOD SILL CRAD	362 353 469 651 162 163 2357 263 3161 774 999 1853 68	2668 3967 3419 3586 18417 3338 17822 1824 23282 8354 9623 8925 753	5 6 6 6 6 7 7 7 6 7	3.23 3.82 3.82 3.82 3.82 3.82 4.43 4.43 3.23 3.24 4.43	975 1148 1792 2407 4419 621 9004 1165 14003 2500 3016 8209 229	2272 1707 2916 3045 1260 172 2608 1552 224 3948 347 46	9478 9203 15569 8651 3200 18399 6248 2846 26499 1910 968	2 3 8A 8A 8A 8A 8A 8A 8A	1.89 1.57 1.89 2.13 1.89 1.99 2.19 1.65 5.15 1.89 4.58 4.58	4294 2006 5511 6486 2301 748 5887 2561 1154 7462 656 211	129 114 159 260 368 2391 775 112 679 243 183 1387 680	838 1138 1666 2886 3197 19688 7342 524 8669 2514 2125 7454 8932	7 7 7 7 6 7 7 5 6 7	4.43 4.43 4.43 3.82 4.43 4.43 3.23 4.43 3.02 4.43	1157	5841 4451 8007 10124 8226 11955 16324 4222 17996 11938 5629 14209 3254
SUSTOT	12567	99218			50382	20464				16160	7720	66219		****	32735 1	
<b>***</b>						PUDA PI LINES WI	EIGHT									
COL/MYO HEM HEX CARSON HEMPAR KAMBAS RELEY	453 2862 272 596 3696	4533 22425 2025 4494 24867	7 7 7 6 5	4.43 4.43 4.43 3.82 3.23 1.82		BAD	16437 3711 8029 16279 12923 16766	2 3 2 4 4 4	1.57 1.89 1.57 2.3 2.3	2912 1768 1184 4688 5824 4779	130 126 2345 75 160 1104	1829 3214 18868 647 1269 8238	5 5 6 6	1.23 1.23 3.23 3.82 3.82 3.82	287 611	5339 2147 21171 5413 8160 23421
MWT/IDA	562	4102	•	4.45	2613	.EN <b>ES</b> WI	3355	6	3.26	2031	LIWEB W 4944	29992	3	2.14	10500	15224
UTAM/WY ARIZOMA HUACHUC TEAD SUBTOT	284 167 355 367	2325 1889 1659 3471		4.65 4.65 4.65 4.65	1321 777 1651 1767	313 232 476 365	1668 1498 2172 2384	6 5 6	3.26 3.26 2.8 3.26	1026 756 1333 1190	1367 1056 3459 71	13153 13697 22569 634	2 5 6 2	1.73	2266 5605	4601. 7138 15220 3019
	, , , , ,	76936			39570	11936	67142				15651   SHAD				44616 1	11063
CAGIF	665	5893	•	4.65	3743	1122	7271	7	3.74		.in <b>es</b> wi		3	3 40		30444
Cregou Washinth H.IVADA	319 259	2693 2572		4.65	1483	314 312	1614 2621	7	3.74 3.74	1174	2897 2228 1386	19975 22226		2.47	7156 5503	26449 9813 7874
CIWEN LEWIS OND PRSIDIO SAAD	161 <b>6</b> 157 461	0134 24731 12735 1536 1562		4.65 4.65 4.65 4.65 4.65	4357 14001 7407 730 3074	1523 213 246 174 406	19659 847 1319 931 992	7 7 7 7	3.74 3.74 3.74 3.74 3.74	5696 797 920 651 1510	14	13153 157. 9663 21863 13595 8162	2 2 2 2	1.65 2.62 2.47 1.65 1.65	4644 1	2155 10001 19441 12764 5163
SUSTOT TOTAL LI	7759 L7 <b>267</b> 9	5 <b>9256</b> 11373			36079		25#54				21520 1			•	13549 1	3747
					1	<b>99</b> 31 <b>8</b> 4	169		ı	>>610	5941 <b>0</b> 4	45364	701 701	AL LIE	3624 76 ES 21 IGHT 1.	6067

STATE

MODE	AIR				•								
DESTINA-	TOTAL	WEIGHT	NCAD	NCAD	RRAD	RRAD	SHAD	SHAD	TOT AIR		AVG WGT PER LINE	NO OF	TOTAL
TION	LINES	S-TONS	LINES	WE IGHT	LINES	WEIGHT	LINES	WEIGHT	WGT	LINES	LBS	SHPMTS	COST
MAINE	2530	74	470	4	19	•	27	•	7	526	25	14	
NH/VER	1894	162	640	4	19	i	37	ī	Ś	756	12	20	15528
MASS COMM/RI	7929 7057	248 260	2304 1742	•	15 <b>6</b> 14 <b>5</b>	1	116	1	10	2376	•	44	26894
NEW YORK		811	3124	13	197	ĭ	149	1 2	16	2001 3470	*	53 92	22377 40578
PENN	10813	391	226	•	162	1	113	0	1	501	1	íi	3831
NJ/DEL MD/DC	15760	501 161	1568 790	5 2	133 72	1	90 48	1	7	1791		.47	19135
VA/W.VA	7881	486	1266	4	154	i	87	ĭ	2	910 1307	5	24 40	6895 13125
N. CARO S. CARO	8236 6606	352 255	1210	7	105	•	56	•	7	1371	11	36	18449
OHIO	6644	329	1314	;	56 70	:	91 55	1	:	1456	11	39 34	20840
MICH	4714	366	826		\$1	ě	45		ij	722	15	24	19245
INDIANA ILL.	7723 8478	248 496	1601	13	72 112	•	19 123	1	14	1732	16	46	12993
MISC	7313	354	1590	15	93	i	64	š	16	1343 1747	12	41 46	22288 38632
M FRIN I OWA	7367 432 <b>0</b>	432 134	14 <b>0</b> 5 774	•	109 24	:	49	1	•	1603	11	42	22310
BRAGG	68693	1633	1541	. ;	1091	š	42 783	9	14	3415	11	22 90	11185 37933
DEVENS DRUM	11042	346	2427	10	119	1	90	i	11	2636	i	70	29267
MCCOY	6657 8774	179 247	1031	5	42 48	0	39 40	:	5	1112	10	29	13587
MEADE	21254	444	1036	i	143	ĭ	161	ī	` ;	1342	10	34 36	16325 14458
SHERION BELVOIR	6617 5952	186 249	1621 879	•	129	1	60	•	•	1770	11	47	23630
DIX	10811	198	1801	i	104	ĭ	58 61	•	:	1966	7	28 52	10174 20316
EUSTIS	7514	286	512	1	203	3	75	ě	4	790	j	21	7584
LEE	5191 5179	215 276	945 973	5	52 54	•	31 49	•	6 5	1048	11 10	28 28	14565
TOAD	6321	166	376	i	159	i	118	i	ź	653	15	17	13227 4748
LEAD	18022	464	23	•	294		256	1	5	573	17	15	11520
SUBTOT	322594	11110	37896	183	4310	23	3226	12	228	45432	324	1203	581478
FLORIDA		244		_		_							
GEORGIA	6873 14573	260 692	330 1281	10	1185	1	58 188	•	16	981 3054		26 81	10037
ALABAMA	17818	1229	812	10	1052	i	685	;	21	2549	16	68	49831
MISS TENN	147 <b>92</b> <b>6320</b>	274	622	4	1013 378	2	111	1	•	1746	. 7	46	16734
KENT	5161	165	300	ź	391		56 59	i	4 5	695 758	10	1 8 20	9033 11672
MISSOUR ARKANS	5831 5438	348 259	303	1	761	Ţ	66	•	3	1132	4	30	7556
LOUISNA	11125	588	24 <b>9</b> 7 <b>60</b>	14	495 975	1 2	50 151	0 2	18	765 1886	7 19	21	7689
TEXAS	10859	492	472	4	1499	i	83	i	',	2054	'7	50 54	42288 22384
OKLA KANSAS	17048 4077	753 280	949 170	•	186	!	116	1	•	1251	14	33	22108
NEB/DAK	1896	191	236	;	389	1 2	37 41	•	2 5	476 666	10 15	13 18	6175 12040
COF AAAO	5038 25 <b>96</b>	186	164 71	2	284	į	22	•	3	470	12	i 2	7130
CAMPBLL	42744	1039	959	1	216 43	. 1	27 528	9	13	314 1530	17	41	3799
CARSON	60555	1655	3799	11	47	•	1164	Ť	43	5010	17	133	31748 102236
HOOD POLK	135934	8274 3308	2361 2368	30 26	221 609	9 2	1143		19	3725	21	**	91760
RILEY	61826	1003	3317	34	78	i	723	4	12 19	3660 4138	18	97 110	76735 91416
SAM HOU STEWART	4267 63050	144 3102	181	33	957		67	i	5	1205		32	12141
BENNING	30217	2078	2296	17	112	1	975 452	7	4 2 20	5571 2720	15	14 <b>6</b> 72	101532
0L155	45696	2749	3250		195	1	493	í	32	3934	16	104	77014
GORDON KNOX	957 <b>8</b> 615 <b>60</b>	214 3857	835 2801	23	491 156	- !	121 677	•		1447		34	13504
L. WOOD	9647	349	744	6	394	i	1 40	<b>5</b>	29 8	3634 1278	16	96 34	69645 18824
WCCLELN RUCKER	5125 18536	21 2 53 5	297 1291	3	31 26	0	46 472	•		376	20	10	4735
SILL	16450	891	1203	11	50	ů	254		10 13	1789	.11 18	47 40	25150 31917
CCAD	44392	148	867	5	23	0	426	2	7	1316	H	٠ \$	17871
ANAD RRAD	38914 8366	3280 1090	107 4 <b>69</b>	5	6 2	0	196 319	1 2	•	311 7 <b>90</b>	4 T 2 Q	8 21	14529
									•				
SUBTOT	841675	45213	38709	345	13618	44	10435	72	462	52762	464	1662	1123327
MMT / IDA	9419	649	100	3	90	0	997	5		1387	12	37	20829
UTAM/NV	5259	279	152	2 2	69	0	375	4	•	796	1.6	21	15179
ARIZONA CALIF	5438 18295	254 1147	168 722	•	1 8 8 5 5 8	1	1369	3	10	1041 2649	7	28 70	11904 264 <b>8</b> 1
OREGON	6637	210	244	Ť	8.8	1	1008	5	7	1340	10	3 5	17365
WASHNIN IRWIN	4813 22213	334 3948	91 1094	! \$	10 429	0	224	2	3	335 1528	15 11	9 40	6212 21608
LEWIS	19656	2577	2286	13	574	;	400	ž	38	3260	23	16	88800
089	33740	1442	1515	34	355	1	183	1	36	2053	35	54	81296
PRSIDIO	3924 7291	114	87 340	1 2	23 55	•	270 635	1	2 3	1030	12	10 27	5641 12988
SAAD	5417	148	180	2	197	56	342	1	59	1119	105	30	130486
TEAD	8789	778	264		124		450	4	12	638	39	22	28147
SUBTOT	190933	12046	7843	"	2770	68	7143	)2	199	17756	295	470	466936
***		40.40		440									
TOTAL	1355202	68369	84448	627	20698	135	20864	1 26	166	125950	1084	1336	2171742

TOTAL LINES 125956
TOTAL WEIGHT 888
TOTAL COST 2121742

#### APPENDIX F

# ORDER-SHIP-TIME CALCULATIONS

<u>Mode</u>	<u>Pa ge</u>
Truckload	172
Less Than Truckload	178
Small Package	184
Air	N/A

TION	CINES	TIME	DAYS	LINES	TIME	DAYS	LIMES	TIME	DAYS	DAYS	MCAD	RRAD	danz Danz
AIWE H/VER	3	5	14 21	1	7	7		10 10	;	21 21	543	1751	32
NES	2074	•	8716	2	7	13		10		8723	416 301	1625 1589	30: 30:
Mu/RI Dy York	3283	- 1	32 13164	1 6	7	7 39	3	1 <b>#</b>	<i>8</i> 28	39 1323 <b>6</b>	313 2 <b>0</b> 7	1521 1483	30. 29
ine I/Dec	255 946	•	926 3499	73 1		129	31	9	278	1633 3585	100	1208	27 28
D/DC	27	į	98		ě	Ĭ	_	9	•	94	133 104	1173	27
CARO	32 23 <b>6</b> 5	:	128 9638	3 7	5	16 30	3	9. 9	27	171 <b>96</b> 77	288 372	997 1014	26: 27:
CARO	1641	5	477 <b>8</b> 172	1 5	5	5 26		:	:	4783 198	574 374	858 877	26 24
CH	1182	į	5196	15	6	83	` 3	į	25	5305	479	1025	23
diawa L.	17 1615	3	77 7 <b>986</b>	7	5	33	1	:	:	85° 8620	352 748	731 645	22 20
ISC INN	15 17	5	75 95	•	5	47 42	2	• 7	15	138 137	793 1 <b>058</b>	892 92 <b>6</b>	28 19
MA LAGG	616 45351	5	3273 194946	69 54	5	332		į	Ĭ	3605	950	683	27
VEH 8	970	į	4054	7	<b>5</b> 7	296 7	1	16	72 18	195314 4676	43 <b>6</b> 371	1826 1579	27: 30:
COY COY	131 <i>0</i> 175	4 5	53 <b>69</b> 919	2	, , , , , , , , , , , , , , , , , , ,	11	1 2	<b>9</b> 7	9 15	537 <b>8</b> 945	331 9 <b>0</b> 3	1415 952	28 19
ADE ERIDE	3390	4	12237	4	į	23	3	9	27	12288	89	1163	27
LVOIR	1652	į.	29 6083		•	;	1	ý	•	36 6 <b>6</b> 63	672 125	031 1162	17 27
1 8718	1261 4506	•	4445 17 <b>886</b>	2 2	•	12 12	1	;	;	4466 17 <b>89</b> 7	134 2 <b>6</b> 7	1327 1158	28 28
CREON	602 411	5	3136 1616	6 2	5	31 11		2	i	3161 1621	574 241	863 1111	26 20
OAC.	55	•	283		į	ė	1	•	j	212	127	1335	26
BTOT	12744	•	44922	327		266	78	•	71	45259	412	1167	27
ORIDA	1	5	5	13	5	64	′•			69	936	733	25
ATARA	#3	5	404	164	5	3799	ı	ě	Ĭ	4211	714	641	24
55	329	5	21 1010	2341 345	5	19588	. 1	•	•	1 <b>9669</b> 3224	871 1 <b>038</b>	541 3 <b>66</b>	23 26
w VT	3 10	5 5	15 45	40 220	4 5	177 1 <b>072</b>	. 1	:	:	266 1118	711 541	497 715	22
SSOUR Eams	2	5	11 1 <b>054</b>	126	4	527		7	•	538	927	374	10
DISMA	190 76	ě	445	124 1524	i	465 6228		í	Ĭ	1519 6673	1849 1261	159 325	19 21
xas La	71 <b>9</b>	7	2 <b>6</b> 4354	411 9330	1	1703 37430	1	7	7	1729 41784	1563 13 <b>66</b>	353 200	16
MEAS B/DAK	36 1	•	254	292	4	1246		7	•	1451	. 1109	496	17
C/WYO	i	· 1	54	564	3	3028	1	é	i	44 3 <b>688</b>	1344 1614	960 , 1814	12
w Mex Mpbcl	5573	. 7	27 <b>6</b> 37	67 29332	5	433 13 <b>0530</b>	5	6	40	44 <b>6</b> 15 <b>826</b> 7	1839 757	766 5 <b>0</b> 5	16
RSON IOD	2591 20264	7	17465 131375	42669 99569	5	219531 4 <b>07096</b>	29 5 <b>6</b>	6	173 341	237176 53 <b>866</b> 6	1639 1521	849 326	1.2
K.K	2179	6	13090	31684	- 1	122116	•	<del>,</del>	67	135274	1276	210	16 19
H HOU	3184	6 7	1 <b>5006</b> 2 <b>6</b>	471 <b>88</b> 13	5	212 <b>660</b> 5 <b>6</b>	32	7	516	23 <b>0006</b> 77	1174 1642	533 447	16 16
EWART Dulum	3 <b>664</b> 13 <b>66</b>	5	14752	42437	Š	226369	56	. ,		235061	733	872	26
188	1564	7	6633 11 <b>60</b> 4	23 <b>0</b> 74 314 <b>64</b>	5	166741 159312	13		417 74	115791 17 <b>6696</b>	828 1975	635 8 <b>67</b>	11
RDOM OX	7858	5 5	36524	13 4 <b>09</b> 7 <b>6</b>	5 5	194184	13	:	106	75 23 <b>06</b> 14	649 683	782 648	25
WOOD CLELM	151	5	1866	584 2893	4	2548 13171	2	7	15	4429 13171	934 773	462 562	19
CKER	3	5	16	11362	5	53339	.1	i	ā	53363	948	626	24
ll Ao	789 2 <b>6</b> 21	6 7	4912 13786	19299 36171	5	4192 <b>8</b> 162791	73	7	13 92	46 <b>846</b> 176678	1384 1679	317 536	15
AD AD	6534 4 <b>68</b> 9	5	32614 24 <b>06</b> 3	28457 10	5	129568 34	13	8 7	186 42	162288 24088	773 1208	556 a	2.3 1.7
BTOT	62635			494405			243		*******	.4444	1129	540	19
T/IDA		8	g	14	7	96	24	5	123	219	2210	1695	3
ah/nv Izona		8	9	) 1	7	2 <b>8</b> 6	9 15	4 5	39 72	59 78	23 <b>0</b> 5 23 <b>00</b>	1572 1182	4
LIF	47	į	417 18	i	7 8	57	1437	4	5080	3554 33	2689 2769	1843 2146	5
egon Shnth	2 34	9	393		8	24	12	5	65 6 <b>6</b>	3817	2712	2218	7
VIN VIS	937 2 <b>68</b> 1	9	8046 18471	174 4715	6	1117 37421	13786	4 5	57532 198228	66695 25412 <b>8</b>	2553 2696	14 <b>86</b> 2231	3
D EIDIO	32		296	2414	7	17111	19641	1	72963 50	90370 50	2888 2785	1811	1
ACHUC	10		79	6	6	34	3	5	16	123	2222	7886	8
AD AD	5 5 <b>8</b> 7	,	3 <b>862</b>	6	7 6	37	581 <b>0</b>	5	28 <b>0</b> 50	4 <b>8</b> 31949	2689 2873	1843 1389	•
			~~~~~~							~~~~			
BTOT	3655			7344			20641	TOTAL	DATE	3416449			

-AKITESC MOIT	rin <b>es</b> MCVD	TRANSIT TIME	NCAD DAYS		insit Pime	NCAD DAYS	NCAD 1	RANSIT TIME	ncad Days	TOTAL	LIMES	NCAD	RRAD	HILEAGE SHAD
AINE					7	7	<del></del>	16	•	18	4	543	1751	
M/VER Ass	2874				7	13		16 16	:	21 8710	2676	418 381	1625 1589	3 <b>646</b> 3 <b>66</b> 4
OMW/RI	3283	1 4	32 13164		7	7 39	3	10	28	37 132 <b>66</b>	3292	313 287	1521 1483	3622 2917
ENW	255	•	926	73	6	429	31	9	278	1304	359	100	1268	2739
J/DEL D/DC	946 27	•	3499		6			9	:	3503 90	947 27	104	1291 1173	2795
A/W.VA	32 23 <b>0</b> 5		128 9638		5 5	16 38	3	9	27 8	152 9 <b>66</b> 7	3 <b>8</b> 2312		997 1 <b>6</b> 14	2688 2743
. CABO	1941				5	5 26		?	:	4782 193	1842		858 877	2622 2416
ICH	1182	•	5190		6	63	3	Ĭ	25	5277	1200	479	1025	2374
MDIANA LL.	1615	5	7986		5	33	1	•	i	8919 8919	16 1623		731 645	
isc Iiw	15 17				5	47 42	2	<b>6</b> 7	15	131 139	26 25		192 928	
RAGG	616 45351				. 5	332 296		;	72	3643 195212	679 45413	958 436	603 1020	2742 2768
EVENS	976	4	4654	1	7	7	1	10	10	4662	972	371	1579	3067
RUM ICCOY	131 <b>6</b> 175				5	11	1 2	<b>9</b> 7	9 15	5373 94 <b>0</b>	1311 179	331 9 <b>03</b>	1415 952	
IEADE MERIDU	3390	4			6	23 #	3	9	27 7	12262 34	33 <b>9</b> 7	89 672	1183 031	
RELVOIR	1652	4	6883		6	•		Ś	i	6083	1652	125	1162	2793
eustis	1201 45 <b>0</b> 0	•	4445 17 <b>88</b> 6	. 2	•	12	1	;	:	4456 17894	1264 4500		1327 1158	2695
JACKSON LEE	602 411				5	31 11		,	:	3140	<b>688</b> 413		963 1111	
POAD EAD	55 12744	4	203		6	266	1	;	71	286 45112	56 12790	127	1335 1167	2011
						****					12/90			
WSTOT	85929 RRAD	,		327 RRAD			RRAD 76					412	1141	. 2656
PLORIDA MORGIA	1 03				5 5	64 37 <b>99</b>	1	:	:	69 4196	14 480		733 641	
ALABAMA	4	5	21	2341	5	10588	•	Ī	į	10606	2345	871	541	2327
iiss Prod	329 3	9	15	46	4	1398	1	:	:	2735 195	675 44	711	366 497	2226
i <b>ng</b> Ilspour	16			22 <b>6</b> 126	5	1672 527		* 7	:	1121 536	23 <b>0</b> 128		715 374	
REAMS LOUISMA	196	i i	1054	124	i	465 6228		7	•	1178 6538	314 1 <b>600</b>	1649	159 325	1964
PEXAS	3	7	20	411	4	1703	1	Ť	7	1719	415	1563	353	1691
orla Cambas	719 36			9336 282	4	3743 <b>0</b> 124 <b>6</b>		7		40314 1405	16649 318	1366 1169	288 496	
COL/WYO	1				5	38 3028	1	7		44 3 <b>6</b> 77	9 573	1344 1614	1019	1520 1170
IBM HEX	5573	. ż	' 7	87	5	433	5	i		438	18	1839	766	1874
ARSON	2591	. 7	17469	42669	4 5	130530 219531	29	6	4 <b>0</b> 173	155353	34910 452 <b>89</b>		585 949	2242 1258
100B 100B	2 <b>5284</b> 2179			99569 31684	4	4 <b>67696</b> 122116	56	7	341 67	4 <b>89899</b> 13 <b>6</b> 549	119023 33072		32 <b>6</b> 21 <b>6</b>	1682 1978
RILEY SAM HOU	3104	•	18668	47186	\$	212668	32	7	218	226793 69	50324 16	1174	533 447	1688
STEWART	3004		14752	42437	3	220309		•		235904	45441	733	872	2648
Benning Bliss	13 <b>0</b> 0 1564	. 7	11604		5	100741 159212	5 <b>6</b> 13	:	417 74	115103 167192	24424 33 <b>6</b> 41	1975	635 8 <b>6</b> 7	2433 1109
GORDON KNOX	7856				5	65 194184	13	9	196	75 231484	15 48847		782 648	2556 2343
L. WOOD	351		1864	584	4	2548 13171	2	7	15	4 <b>688</b> 13171	937 2885	934	462 562	1933 2321
RUCKER	3		16	11362	5	53339	1	8	1	53358	11366	948	626	2498
erl Cad	789 2021				4 5	41926 162791	13	7	13 92	45146 171945	11 <b>090</b> 382 <b>0</b> 5		317 53 <b>6</b>	1546 18 <b>6</b> 5
NAD RRAD	6534 4 <b>08</b> 9		32614 24663		5	129568	13	8	196 42	159377 14 <b>986</b>	35004 4105	.773 1298	55 <b>6</b>	2321 1796
TOTEUS	62635			494465			243				4203	1129	540	
	SHAD	_	_	SHAD	_		SHAD							
ADI/TUP VW/HATU		8		•	7	96 2 <b>8</b>	24	5	123 39	52	38 12	2365	1572	441
ARIZOWA CALIF	47	. 9	•	1	6	6 57	15 1437	5	72 5 <b>080</b>		16 1492	2396	1182	693
REGON	2	: 9	18		8	9	14	Š	65	74	16	2769	2146	583
iashntw [rig] ii	34 937	9	8846	174	6	24 1117	12 137#6	5	57532	245 62196	49 14 <b>0</b> 17	2553	1480	380
.EN 15 PRO	2 <b>98</b> 1				8 7	37421 17111	39956 19641	5	198228 72963	231944 82649	46732 22887		2231 1011	
PREIDIO	16	9	•	١ .	7	•	14	4	50 18	50 94	14	2785	1856	61
HUACHUC BAAD	5	9	44		7	34	i	4	4	21	6	2689	1843	52
PEAD	567		3862		6	37	5616	<del></del> 5	28656	36526	6323	2073	1369	<b>692</b>
SUBTOT	3655	•		7344			88641	TOTAL		3288958 735249				
	152219			582676			86954	TOTAL						

ALT. NO HOOE	THO TRUCKLOAD	OST											
DESTINA- TION	- NCAD T	RANSIT TIME	NCAD DAYS	rrad Lines	TRANSIT TIME	PRAD DAYS	Shad Lines	TRANSIT TIME	SHAD Days	TOTAL Days	MILEAGE MCAD	MILEAGE   RRAD	MILEAGE SHAD
Maine Mn/Ver	3 5	5	14 21	1	7	7		16 16		21	543	1751	3218
Mass Come/RI	2074	4	8718 32	2	7	13		10 15		8723	418 381	1625 1589	3 <b>646</b> 3 <b>66</b> 4
NEW YOR!	K 3293 255	4	131t .	6	6	39		9	20	13236	313 287	1521 1483	3 <b>022</b> 2917
MJ/DEL	946	- 1	926 3499	73 1	. 6	429	31	. ,	270		100	12 <b>58</b> 1291	2739 2867
MD/DC VA/W.VA	27 32	4	98 128	3	6	16	3	9	27	J 96	164	1173 <b>99</b> 7	2795 2688
N. CARO ONIO	23 <b>0</b> 5 41	:	9638 172	7	5	38 26	_	9	Ĩ	9677	372	1814	2743
HICH INDIANA	1182 17	. 4	5198 77	15	6	ij	3	i	2	5305	374 479	877 1 <b>62</b> 5	241 <b>0</b> 2374
ILL. WISC	1615	5	7986	7	5	33	1			0020	552 748	731 <b>64</b> 5	2238 2 <b>6</b> 56
14 T 1600	15 17	5	75 95	,	5	47 42	2	• •	15		793 1658	892 920	2073 1932
iona Bragg	61 <i>6</i> 45351	5	3273 1 <b>94946</b>	69 54	5 5	332 296		•	72		958 43 <b>6</b>	683 1826	2742 2768
DRUM	97 <b>6</b> 131 <b>6</b>	4	4854 53 <b>69</b>	1	7	7	i i		10	4676	371	1579	3067
MEADE	175 33 <b>90</b>	5	919 12237	2	5	11 23	2	7	15	945	331 9 <b>6</b> 3	1415 952	2824 1997
SMERIDM	1652	Š	29		5	•	3 1	7	27	36	89 672	1183 831	2798 1796
DIX	1201	Ā	6003 4445	2	•	12	1	,	•		125 134	1162 1327	2793 2867
edetis Cee	45 <b>06</b> 411	:	17 <b>866</b> 1 <b>616</b>	2	6	12 11		,	:		267 241	1150	2895 2846
TOAD LEAD	35 12744	:	263 44922	46	:	266	1	;	71	212	127	1335	2011
SUBTOT	84286	_	,	320	•		70	,	/•	43437	47	1167	2712
					RAUSIT	ANAD	/•				461	1161	2658
FLORIDA		_	_	LINES	TIME	BYAO						MICAGE MICAGE	
GRONGIA	03	5	484	13 864	•	53 29 <b>06</b>	1	:	:	58 3318	936 714	3 <b>69</b> 91	25 <b>0</b> 7 24 <b>0</b> 1
S. CARO ALABAMA	14	5 5	21	1041 2341	4	4216 9564		2	:	4223 8585	574 871	306 113	2622 2327
MISS TEM	329	6	1818	345 40	•	1395 154	1	į	i	3228 177	1030	363	2682
RENT JACKSON	10	5	45 28	220 682	•	937 2778	•	į	i	982	711 541	214 41 <b>6</b>	22 <b>26</b> 2389
CAMPULL	5573 3 <b>66</b> 4	5	27637	29332		116547	5	•	40	2790 144224	574 757	313 269	2 <b>6</b> 27 2242
BENNING	1300	5	14752 <b>66</b> 33	42437 23 <b>6</b> 74	•	1741 <b>98</b> 8 <b>68</b> 42	56	•	417	188942 93693	733 828	334 148	2648 2433
GORDON KNOX	7058	5	36524	13 4 <b>69</b> 7 <b>6</b>	•	51 17 <b>0</b> 759	13	?	106	60 267396	649	232	2556
HCCLELM RUCKER	3	5	16	2885 11362	3	9931 43539	1			9931 43563	6 <b>63</b> 773	3 <b>65</b>	2343 2321
MAD	6534	5	32614	28457	i	97600	13	i	786	130327	94 <b>8</b> 773	199 6	24 <b>68</b> 2321
SUBTOT	24711			184622 RRAD		RRAD					751	226	2463
HISSOUR	2	5		LINES		DAYS			_			RRAD MILAGE	
ARRAMS LOUISMA	196	6	1054	126 124	•	527 465		7	:	538 1519	927 1 <b>849</b>	374 159	1847 1984
TEXAS	7 <b>6</b> 3	6 7	445 20	1524 411	1	622 <b>8</b> 17 <b>6</b> 3	1	8 7	<b>8</b> 7	6673 <sup>-</sup> 1729	12 <b>01</b> 1563	325 353	2111 1691
okla Kansas	71 <b>9</b> 36	6	4354 284	933 <b>8</b> 282	4.	3743 <b>0</b> 1246		7	9	41784 1451	1300	288 49 <b>8</b>	1563
NEB/DAR COL/WYO	į 9	6 7	6 54	7 564	5	38 3 <b>62</b> 8	,	7	6	44	1199 1344	1616	1743 1528
NEW MEX	1 2591	7	7 17465	87	5	433	1	6	ē	. 3988 448	1614 1839	36 <b>0</b> 7 <b>66</b>	117 <b>0</b> 1 <b>0</b> 74
HOOD	20204	7	131375	42669 99569	-5	219531 4 <b>07090</b>	29 50	6 7	173 341	23717 <b>0</b> 53 <b>886</b> 6	1639 1521	349 326	1258 1682
RILEY	2179 31 <b>84</b>	6	13996	31684 47188	4 5	122116 212669	32	7	67 218	135274 230886	1276 1174	21 <b>6</b> 533	1978 1688
SAM HOU BLISE	1564	7	2 <b>6</b> 116 <b>64</b>	13 314 <b>64</b>	4 5	56 159212	13	7 6	74	77 17 <b>0696</b>	1642 1975	447 887	1668
L. WOOD SILL	351 789	5 6	1866 4912	584 19299	4	2548 41920	2 2	7	15 13	4429 46846	934	462	1933
CCAD RRAD	2821 4889	7	13786 24883	36171 1 <b>9</b>	5	162791	13	7	92	176670	1384 1679	317 53 <b>6</b>	1546 18 <b>0</b> 5
SUBTOT	37931	•	-11003	312186	,	,,	158	,	42	24686	1200	485	179 <b>6</b> 1635
HWT/IDA			•	14	2	96	24	5	123	219	2210	1695	837
VA/HATU ARIZONA		8	•	I.	7 6	20	9 15	4	39 72	59 78	2305 2366	1572 1182	441 693
CALIF OREGON	47 2	,	417 18	•	7 8	57 Ø	1437 14	4 5	5888	5554 83	2689 2769	1843	52
Washwin I mu i w	34 937	9	363 9046	3 174	ě	24 1117	12 137 <b>66</b>	\$	68	387	2712	2146 2218	583 773
LEWIS	2001 32	,	18471	4715	8	37421	39956	5	57532 198228	66695 25412 <b>8</b>	2553 2696	14 <b>86</b> 2231	3 <b>89</b> 75 <b>8</b>
PRSIDIO		,	296 0	2414	7	17111	19641 14	1	72963 50	9 <b>0</b> 37 <b>0</b> 5 <b>6</b>	2886 2785	1811 1856	141
HUACHUC SAAD	16	8	79 44	6	<b>6</b> 7	34 #	2	5	10	123 40	2222 2689	1086 1043	877 52
TEAD	507		3862	6	6	37	5810	š	28050	31949	2073	1389	692
SUBTOT	3635			7344			10641	TOTAL DI		3261195	2529 1440	1719 1122	489 1594
IV IAL	. 150503			503792			10954	TOTAL L		735249			
							A	VERAGE DI	ATE	4.43556	_		

ALT. NO	THREE HO	OE TRU	CKLOAD (	ST									
DESTINA- TION	MCAD TR LIMES	ANSIT Smit	MCAD DAYS	RRAD T	TIRNAM TIME	RRAD Days	SHAD '	TRANSIT TIME	SHAD DAYS	TOTAL Days	MILEAGE M NCAD	ILEAGE I RPAD	ileage Shad
MAINE NH/VER	3 5	5	14 21	1	7	7		10 16		21 21	543 418	1751 1625	3210 1 <b>040</b>
HASS	2874	4	8716	3	j	13 7		15 16	i	8723 39	381 313	1589 1521	3846 3884 3822
COMM/RI NEW YORK		:	32 13164	1 6	6	39	3	,	28	13236	287	1483	2917
Prom MJ/DEL	255 94 <b>6</b>	:	92 <b>6</b> 3499	73 1	6	429	31	9	278 #	1633 3 <b>50</b> 5	190 133	12 <b>68</b> 1291	2739 2867
HD/DC	27	•	98 128	3	6	16	3	9	<b>6</b> 27	98 171	184 288	1173 997	2795 2688
WA/W.VA	32 23 <b>0</b> 5		9638	7	Š	38	•	9		9 <b>677</b> 19 <b>8</b>	372 374	1014	2743 2416
HICH	41 1182	. :	172 5198	5 15	5	26 83	3	į	25	5305	479	1025	2374
indiama ILL.	17 1615	5	77 7986	7	\$ \$	33	1	•	•	65 1026	552 748	731 645	2238 2 <b>6</b> 56
WISC	15 17	5	75 95	•	5	47 42	2	<b>8</b> 7	15	138 137	793 1058	892 926	2673 1932
IOMA	610	5	3273	69	Ś	132		9	72	3665	958	683 1820	2742 2768
bragg Devens	45351 97 <b>0</b>	:	194946 4 <b>6</b> 54	54 1	<b>5</b> 7	2 <b>96</b> 7	•	10	10	195314 4 <b>6</b> 76	43 <b>6</b> 371	1579	3967
MCCOY	131 <b>6</b> 175	4 5	5369 919	2	6 5	11	1 2	7	9 15	5378 945	331 9 <b>0</b> 3	1415 952	2 <b>824</b> 1997
MÉADE SHERIDU	3396	4 5	12237 29	4	6	23	3	;	27 7	12288 36	89 672	11 <b>83</b> 831	2798 1796
BELVOIR	1652	4	6083	_	6	•	1	•	•	6683	125	1162	2793 2867
DIX Eustis	1201 4506	:	4445 17886	2 2	i	12 12	•	•		44 <b>66</b> 17 <b>89</b> 7	134 267	1158	2895
LEE TOAD	411 55	:	1618 283	2		11	1	;	,	1621 212	241 127	1111 1335	2846 2811
LEAD	12744	4	44922	46	6	266	•	9	71	45259	47	1167	2712
				Lines Lines		AMAD DAYS					ı	anad Hilage	
PLORIDA	.1	5	5	13	•	53		•	•	58	936	369	2507
Georgia S. Caro	<b>63</b> 1	5 5	464	1641	:	2966 4218	1	,	:	331 <b>8</b> 4223	714 574	91 300	2401 2622
acabama Miss	4 329	5	21 1818	2341 345	4	8564 1395	1	:	:	4585 3226	971 1030	113 3 <b>0</b> 3	2327 2 <b>68</b> 2
TENN	3 10	5	15 45	46 228	1	154 937	. 1	•	•	177 982	711 541	214 416	2226 2389
JACKSON	6	5	28	682	į	2776		į	i	2798	574	313	2627
Campbell Stewart	5573 3 <b>004</b>	5	27637 14752	29332 42437	•	116547 174196	5	;	46	144224 1 <b>889</b> 42	757 733	2 <b>69</b> 334	2242 2648
BEWNING GORDON	1366	5	6633	23 <b>0</b> 74 13	:	86942 51	56	•	417	93 <b>69</b> 3 6 <b>6</b>	628 649	14 <b>8</b> 232	2433 2556
RHOX	7858	5	36524	40976 2805	4 3	170759 9931	13	Í	106	207390 9931	603 773	365	2343 2321
HCCLELN ROCKER	3	5 5	16	11362	4	43539	1	i		43563	948	199	2468
ANAD	6534	5	32614	28457	3	97668	13	•	106	130327	773	•	2321
				Lines		RRAD DAYS						rrad Hileage	
Hessour Arkans	2 196	. 5	11 1954	126 124	4	527 483		7	:	538 1519	. 927 -1849	374 159	1647 19 <b>64</b>
LOUISMA	76	6	445	1524	į	6228	_			6673	1261	325	2111
ORLA	713	7	4354	933 <b>6</b>	•	1703 37438	1	7 7	7	1729 41784	1563 13 <b>00</b>	353 208	1691 1563
rambas Neg/Dae	3 <b>6</b> 1	6	2 <b>9</b> 4	282	5	124 <b>6</b> 11		7	;	1451 17	1109 1344	496 1616	1743 1528
HOOD POLK	20204 2179	7	131375	99569 31 <b>68</b> 4	:	487 <b>696</b> 122116	50	7	341 67	538886 135274	1521 1276	326 210	1682 1978
RILEY	3104	6	18000	47188	Š	212660	32	7	218	230006	1174	533	1680
SAM HOU BLISS	3 1564	7	20 11664	13 31464	5	56 159212	13	7	74	77 17 <b>8896</b>	1642 1975	447 897	16 <b>68</b> 11 <b>9</b> 9
L. WOOD SILL	351 789	5 6	1866 4912	584 1 <b>6</b> 299	:	254 <b>8</b> 4192 <b>8</b>	2 2	7	15 13	4429 46 <b>8</b> 46	934 1384	462 317	1933 1546
CCAD	2621	7	13786	36171	5	162791	13	į	92	176670	1679	530	1805
RRAD	4089	6	24003	18	3	34	. •	7	42	24986	1208	•	1799
		•		tead Lines		TEAD DAYS					!	TEAD HILAGE	
COL/WYO	8 1	7	54 7	564 87	5	2544 4 <b>88</b>	1	6	6	26 <b>0</b> 3 415	1614 1839	535 623	1170 1074
CARSON DAK	2591	7	17465	42669	5	197035	29	6		214674	1639	588	1258
				RRAD LINES	,	RRAD	TEAD		TEAD	26	1344	914 RRAD	1528
MWT/IDA		ļ	•	14	2	DAYS	LIN <b>ES</b>	4	DAYS	290	2210	1695	HILAGE 446
utah/wv Arizona		:	:	3 1	7	20 6	15	4 5	14 72	34 78	23 <b>6</b> 5 23 <b>66</b>	1572 1182	37 <b>67</b> 7
HUACHUC TEAD	10 567	:	79 3862	•	6	34 37	2 5818	5	18 19928	123 23878	2222 2 <b>0</b> 73	1389	861
		•		·	•			•		43010	2073	1303	•
							CIMES SHAO		SHAD DATS				SHAD MILEAGE
Calif Orbgon	47	9	417 18	8	7	57 •	1437 14	4 5	5 <b>080</b> 65	5\$54 03	2689 2769	1843 2146	52 583
	34	•	303	3	i	24	12	5	66 19	387 19	2712	2210	773 186
WASHWIN		_		174	6	1117	13786	į	57532	66695	2553	1400	300
neavoy Neam	937		8946		_								
WEVADA I MW I W LEWIS OND	937 2681 32	,	18471 296	4715 2414	,	37421 17111	39956 19641	3	198228 72963	254128 90370	2696 28 <b>8</b> 0	2231 1811	
nevada I mu in Levi s	2001	,	18471	4715		37421 17111		4					
MEVADA I MW IM LEWIS OND PRSIDIO SAAD	2861 32 5	, ,	18471 296	4715 2414	7	17111	19641 16 1	•	72963 50 4	90370 50 48	288 <i>0</i> 2785 2689	1811 1856 1843	· 141
WEVADA I MW IW LEWIS OND PRSIDIO	2001 32	, ,	18471 296	4715	7	17111	19641	TOTAL	72963 50 4 Days	96376 56 48 3236642	288 <i>0</i> 2785	1811 1856 1843	· 141
WEVADA I RWIW LEWIS OND PRSIDIO SAAD	2861 32 5	, ,	18471 296	4715 2414	7	17111	19641 14 1 10954	•	72963 50 4 Days Lines	90370 50 48	288 <i>0</i> 2785 2689	1811 1856 1843	· 141

		•											
ALT. NO I	HCAD T	RAMETT	OST WCAD	RRAD 1	RAMSIT	RRAD	SHAD TI	RAMSIT	SHAD	TOTAL	er. Page	<b>#</b> *** <b>*</b> ***	MT: 01.00
TIOM MAINE MH/VER HASS COMM/RI HASS COMM/RI HASS COMM/RI HD/DC VA/M.VA H. CARO BRAGG DEVENS DRUN MEADE SELVOIR DIX EUSTIS LER TOAD LEAD	2974 8 3203 255 946 27 32 2305 45351 956 411 955 1271 4506 411 95 1271 CBDA	TIME 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0AY8 14 21 8718 32 13164 926 3499 128 194946 4654 5369 12237 6483 1786 1786 1786 1786 1786 1786 1786 1786	1 2 1 6 6 6 6 73 1 1 3 7 7 5 4 1 1 4 4 2 2 2 2 2 4 6 6	77 77 77 66 66 66 66 66 66 66 66 66 66 6	7 6 13 7 7 9 9 429 6 6 6 16 38 296 7 7 6 23 12 12 12 11 6 266	3 31 3 8 1 1 3	TIME  18 18 18 19 9 9 9 9 9 9 9 9 9 9 9 9 9	DAYS  0 0 0 0 5 28 278 8 0 277 18 9 277 18	21 21 8723 1633 1633 3965 98 171 9677 19577 19577 12286 6803 4466 17897 1621 212	543 418 381 383 133 287 109 133 198 288 372 438 371 331 25 134 267 247	1629 1689 1521 1483 1288 1291 1173 997	3218 3848 3884 3822 2917
ONIO	LIMES 41	4	157	5	5	26			_		LBDA ILEAGE		
MICH INDIANA ILL. WISC MINN IONA MCCOY SWERIDM KENT CAMPULL KNOX	1182 17 1615 17 1615 17 618 175 6 228 29332 46976	4 4 4 5 5 5 4 4	4947 65 6717 67 85 2908 030 25 772 114296 149073	13 7 9 6 69 2 18 5573 7658	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	83 6 33 47 42 332 11 8 43 22144 32747	3 1 1 2 2 1 5 13	8 8 8 7 7 7 7 8	25 8 15 6 15 7 6 48 196	103 5054 73 6758 129 120 3240 855 32 815 136479 101926	266 374 192 361 519 784 662 649 398 46 231	877 1925 731 645 892 926 643 952 831 416 269	2418 2374 2238 2858 2873 1932 2742 1997 1798 2389 2242 2343
	LINES			CINES						,	ILLAGE NCAD	amad Hilage	
PLORIDA GEORGIA S. CARO ALABAMA MISS TENU JACKSOU STEWART BENING GORDOU MCCLELM RUCKER AMAD	1 03 1 4 329 3 6 3004 1300 2	555555555555555555555555555555555555555	5 464 5 21 1818 15 28 14752 6633 9 0 16 32614	13 804 1941 2341 345 46 682 42437 23674 13 2235 11362 20457	4 4 4 4 3 3 4 3	53 2906 4218 8364 1395 154 2770 174196 86642 51 9931 43539 97608	1 1 1 50	8 9 8 9 9 8 9 8 9 8 9 8 9 8 9 8 9 8 8 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	417 8 8 417 8 8	3318 4223 8585 3226 177 2798 188942 93893 68 9931 43563	936 714 574 871 1838 711 574 733 828 649 773 948 773	309 91 308 113 303 214 313 334 148 232 6	2507 2401 2622 2327 2022 2226 2627 2648 2433 2556 2321 2488 ?321
•				RRAD LIMES									
MISSOUR ARRAMS LOUISWA TEXAS ORLA RAMSAS MEMODAR HOOD POLK RILEY SAM HOU BLISS L. WOOD SILL CCAD RRAD	-2 196 76 3 719 36 1 20204 2179 3104 3 1564 351 789 2021 4089	5667666766775676	11 1854 445 28 4354 284 6 131375 18668 18664 1866 4912 13786 24663	126 124 124 411 9336 282- 2 99569 11684 47188 13 31464 584 18299 36171 19	4 4 4 4 5 4 4 5 4 4 5 3	527 465 6228 1703 37430 1246 12216 212660 56 159212 2548 41920 162791	58 9 32 13 2 2 13 6	7 7 8 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	341 67 218 67 218 74 15 13 92 42	538 1519 6673 1729 41784 1451 17 538886 77 178898 4429 46846 176670 24688	927 1849 1263 1366 1169 1321 1276 1174 1642 1975 934 1364 1679 1268	374 159 325 353 288 498 1010 326 216 533 447 462 317 530 8	1847 1984 2111 1691 1563 1743 1528 1689 1689 1689 1933 1546 1895 1796
			!	TEAD								TEAD MILAGE	
COL/WYO NEW MEX Carson Dak	9 1 2591	7 7 7	54 7 174 <b>6</b> 5	564 87 42 <b>669</b> 5	5 5 5	2544 460 197035 26	1 29	6 6	6 9 173	26 <b>0</b> 3 415 214674	1614 1839 1639 1344	535 623 588 914	1170 1074 1258 1528
				RRAD LIMES			TEAD LINES						TEAD HILAGE
MMT/IDA UTAM/MV ARIZOMA HUACHUC TEAD	18 587	1	79 3162	14 3 1 6	7 7 6 6	96 20 6 34 37	24 4 15 2 5016 SHAD LINES	4 4 5 5 3	184 14 72 16 19928	200 34 78 123 23828	2216 2365 2366 2222 2673	1695 1572 1182 1886 1389	446 37 677 861 8 Shad Mileage
CALIF- OREGOM	47 2	;	417 18	•	7 8	57	1437 14	4 5	5 <b>888</b> 65	5554 #3	2689 2769	1843 2146	52 583
Washieth Hevaca Iswis Ced Preidig Saad	34 937 2001 32 5	;	303 8046 10471 296 0 44	3 174 4715 2414	6 6 7 7	24 1117 37421 17111	12 5 13766 39956 19641 14	5 4 4 5 4	57532 190220 72963 56	387 19 66695 254128 98378 56 48	2712 2553 2696 2880 2785 2689	. 2218 1400 2231 1811 1856 1843	773 186 386 758 141 61 52

TOTAL LINES 735249
AVERAGE DAYS 4.34495

ALT.	WO	FIVE	AND	SIX	TRUCKLOAD	OST
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DESTINA- NOIT	LINES	TRANSIT TIME	MCAD DAYS	RRAD LINES	TRANSIT TIME	RRAD	SHAD LIMES	TRANSIT TIME	SHAD Days	TOTAL DAYS	MILEAGE NCAD	MILEAGE RRAD	HILEACK SHAD
MAINE MH/VER MASS COMM/RI MEW YORK PENN	2074 1 328:		14 21 0609 32 13131	1 2 1 6 73	7 7 6. 6	7 6 13 6 38 421	1		20	21 21 8703 1 39	54 41 38 31 28	3 175 162 1 150 1 152 7 140	1 3218 5 3040 9 3064 1 3022 3 2917
MD/DC	940	i i	34 <b>89</b> 98	'i		12	-	9	2/0	3496	100 131 100	129	1 2867
VA/W.VA W. CARO BRAGG	32 2309 45351	i i	128 9615	3 7	5	16		9		) 171 9653	280 37:	99	7 2688 1 2743
DEVENS	976 1316	4	194492 4644 5356	54 1		296 7		. 10	72 16	4061	436 371	1579	3867
HEADE BELVOIR	3396 1652		12283 6867	4	6	23 6		9	27	12254	331 89 129	1183	2798
DIX EUSTIS LEE	1201 45 <b>6</b> 6	4	4433 17841	2	•	12 12		•	1	17852	134 267	1327	2867
TOAD LEAD	411 55 1274	4	1666 202 44794	2 46	6	11 8 266	1		71	211	241 127	1339	2011
	LBDA	•	••••		•		•	,	/1	45131	47 CBDA	1167	2712
ONIO	LINES 41		157	5				_	_		HILEAGE		
HICH INDIANA	1182	: <b>4</b>	4935 65	15	5 5 5	26 82	3		25 8	5042	200 374 192		2374
TLL. WISC	1615	4	6761 67	7	5 5	33 47	1 2	•	8 15	6742	361 519		2056
MIMA IOWA MCCOY	17 616 175	5	85 2982 828	69 2	5 5 5	42 331 11	2	7 9 7		3233	784 662	926 683	1932 2742
Sherion Kent	226	•	25 77 <b>0</b>	10	5	42	î	7	15 7	854 32 813	649 398 46		1790
Campull Enox	29332 4 <b>09</b> 76		114 <b>662</b> 148663	5573 7 <b>850</b>	4	22688 32668	5 13	i	49 186	136130 101437	231 1 <b>0</b> 3	269	2242
	rings ncyd			amad Liw <b>es</b>				•			MCAD MILAGE	AMAD MILAGE	
Plorida Georgia	1 83	5	5 4 <b>64</b>	13 864	:	53 2897	1	:	:	58 33 <b>69</b>	936 714	3 <b>09</b> 91	2587 2481
S. CARO ALABAMA HISS	1 4 329	5 5	5 21 1815	1841 2341	•	4288 8541	ı	. ;	:	4212 8561	574 871	300 113	2622
TENN JACKSON	3 6	5	15 27	345 46 682	•	1391 154 2764	1	1 1 9	į	3214 177	1038 711	3 <b>0</b> 3 214	2982 2226
STEWART BENNING	3004 1360	5 5	14722 6620	42437 23674	į	173766 85811	50	9	417	2791 188488 92848	574 733 - 828	313 334 148	2627 2648
GORDON MCCLELN RUCKER	3	5 5 5	9 16	13 2885 11362	3	99 <b>0</b> 2		9	0	68 9982	649 773	232	2433 2556 2321
AMAD	6534	ś	32549	28457	;	43425 97323	13	8	165	4345 <b>0</b> 129977	948 773	199 6	24 <b>08</b> 2321
				rrad Lin <b>es</b>						-	•	rrad Hileage	
MISSOUR ARKAMS	-2 196	6	1052	126 124	:	526 464		7 7	:	537 1516	927 1 <b>649</b>	374 159	1847 19 <b>64</b>
Louisma Texas Orla	76 3 719	6 7 6	444 20 4347	1524 411 933 <b>6</b>	•	6213 1699 37336	1	7 7	7	6657 1725	12 <b>61</b> 1563	325 353	2111 1691
HOOD	20204 2179	6	131173	99569 31684	•	406094 121800	56 9	7	341 67	41683 537608 134935	13 <b>00</b> 1521 1276	288 326 210	1563 1682 1978
SAM HOU BLISS	3 1564	7 7	20 11588	13 31464	4 5	56 158898	13	7	74	76 17 <b>9</b> 56 <b>0</b>	1642 1975	447 897	1668
L. WOOD SILL CCAD	351 789 2021	5 6 7	1863 49 <b>64</b> 13766	584 10299 36171	•	2542 41817	2 2 \3	7 7 7	15 13	44 20 46735	934 1384	462 317	1933 1546
RRAD	4869	6	23962	10	i	162429 34	,,,	7	92 42	176288 24 <b>6</b> 39	1679 12 <b>68</b>	53#	18 <b>0</b> 5 179 <b>0</b>
				PUDA Lines								PUDA MILAGE	
COL/WYO NEW MEX CARSON	8 1	7 7 7	53 7	564 87	•	2 <b>872</b> 343	1	6	6	2132 350	1614 1839	126 259	1176 1874
NEB/DAK KANSAS	2591 1 36	6 6	17439 6 2 <b>8</b> 4	42669 7 282	3 5 5	147031 33 1270	29	6 7 7	173 2	166643 40 1482	1639 1344	36 669	1258 1528
RILRY	3104	6	17977	47188	4	287899	32	ŕ	210	226094	1109 1174	551 488	1743 1680
			Í	RRAD LIMES			Cin <b>es</b> Trad					RFAD MILAGE	TEAD HILAGE
MWT/IDA UTAM/WV ARIZOMA		8	6 4 ,1	14	7	96 2 <b>8</b>	24	3	164 14	298 34	2210 2305	1695 1572	446 37
HUACHUC TEAD	18 587	i	71 3857	1 6 6	6 6	6 34 37	15 2 5010	5 5 3	72 16 19876	76 123 23765	23 <b>00</b> 2222 2073	1182 1086 1389	677 861
	•••	·	-	·	•	• • •	SHAD	•	2,0,0	23,703	2073	1309	SHAD
CALIF	47	,	416		7	57	LIMES 1437	4	5063	5539	2689	1843	MILEAGE 52
OREGON Washith Meyada	2 34	9	18 3 <b>0</b> 3	3	:	24	14 12	5	64 68	82 3 <b>86</b>	2769 2712	2146 2218	503 773
NEVADA I MIN CENIS	937 2001	;	8637 18456	174 4715	•	1115	13706 39956	1	57395	19 66547 283683	2553	1400	196 388
PREIDIO	32	,	296	2414	7	37374 17687	37730 19641 14	4	197829 72766 50	253653 90149 50	2696 2880 2785	2231 1911 1856	75 <b>8</b> 141 <b>0</b> 1
SAAD	3	,	44		ŕ	i	1	i	4	48	2689	1843	52
TOTAL	207590			446705			10954	TOTAL D		3134932	AR35-60	\R\$5~6#	
							_	JATOT O BRANK		735249			

DESTINA-		MSIT	NCAD		TRANSIT	RRAD		PANSIT	SHAD	TOTAL	HILEAGE H		
TION	******	LIME	DAYS	LINES	TIME	DAYS	LINES	TIME	DAYS	DAYS	NCAD	RRAD	SHAD
aine H/Ver	454 788	7	3 <b>696</b> 43 <b>80</b>	42 <b>69</b>	16 10	423 671	19 39	14 14	267 528	377 <del>9</del> 5779	543 418	1751 1625	32: 30:
MES	194	ĕ	1236	154	10	1483	46	14	629	3347	301	1589	301
DWM/RI EW YORK	1133 14 <b>68</b>	6 6	7008 8928	97 445	9	916 415 <b>8</b>	49 147	13 13	661 1943	8586 15829	313 2#7	1521 1483	36: 29:
	2018	ě	15009	356	í	3862	82	13	1044	19915	100	1268	27
I/DEL D/DC	1115	•	6354	174	9	1536 1174	58 45	13 13	759 580	8649 7942	133	1291 1173	280 279
A/W.VA	11#1 19#2	•	12125	138 197	i	1582	57	ii	718	14425	104 288	997	261
- CARO	265	6	1681	189		1527	52 56	13 12	663	3071	372	1614	274
. CARO NIO	411 1452	7	2832 9220	176 217	:	1348 1673	49	12	695 581	4875 11473	574 374	858 877	262 243
ICH	128	7	849	161	į	1385	52	12	611	2765	479	1825	23
MDIANA LL.	1188 37	7	#115 272	152 165	7	1112 1168	58 45	11 11	668 489	9006 1936	552 74 <b>8</b>	731 645	22 2 <b>6</b> :
isc	1762	7	12733	263		2638	59	11	645	15416	793	892	26
inn Oma	325 15 <b>6</b>	:	2664 1237	23 <b>0</b> 69	* 7	1886 496	63 51	11 13	876 658	534 <b>0</b> 2382	1636 958	92 <b>6</b> 683	191 27
RAGG	388	7	2522	1463	í	11842	534	ii	6842	21266	430	1626	27
EAERS	575	•	3646	151	10	1456	66	14	899	5996	371	1579	30
rom CCOY	143 1816	•	<b>89</b> 1 14125	145 125	,	1328 989	37 59	13 11	4 <b>66</b> 633	2 <b>699</b> 15747	331 903	1415 952	28: 19:
EADE	1955	6	10909	268	9	2287	115	13	1483	14688	89	1183	279
Heridu Elvoir	842 3	7	6 <b>624</b> 17	97 75	:	736 636	58 36	10 13	5 <b>69</b> 4 <b>64</b>	72 <b>68</b> 1117	672 125	831 1162	17 <sup>1</sup> 27 <sup>1</sup>
IX	1060	ě	6644	227	,	2625	76	13	994	9864	134	1327	28
USTIS NCRSOM	92 15 <b>6</b>	6	558 1833	95 119	:	913	63 36	13 12	829 448	2191 2394	267 574	1158 863	28 26
EE	427	6	2558	114	i	951	35	13	455	3964	241	1111	28
OAD	1461	5	8363 1897	58 495	:	519 42 <b>6</b> 3	43 153	13 13	556	9377	127	1335	26
ead 	347	<del></del>	107/	473 	<del></del>	1443 	<del></del>	<del></del>	1937	8037	47	1167	27
TOTEU	25888			6726			2356				412	1141	26
LORIDA	353		2777	1055	7	13577	79	12	957	17311	936	733	25
Bongia Labama	541 <b>664</b>	7	3932 4 <b>646</b>	3525 23 <b>0</b> 7	7	24924 15 <b>689</b>	11 <b>6</b> 131	12 12	13 <b>66</b> 1523	36157 21858	714 871	641 541	24 23
LSS LSS	325	i	2646	2855	é	17620	105	ii	1151	21417	1636	366	26
	299	7	2171	2633	7	13504	64 34	11	726	16481	711	497	22
rmt Issour	162 150	7	11 <b>02</b> 117 <b>6</b>	973	6	6413 6178	44	12 16	461 454	7915 7 <b>809</b>	541 927	715 374	23: 18:
RKAHS	196	ě	1553	1514	•	8735	41	10	436	16717	1049	159	190
ouisma Exas	3 <b>96</b> 447	9 1 <b>5</b>	3347 4273	2921 3676	- 6	18161 19328	98 93	11 18	1 <b>08</b> 2 921	225 <b>90</b> 24514	12 <b>0</b> 1 1563	325 353	21 16
KLA	186	9	1646	951	i	5818	125	16	1195	8659	1306	286	15
ambas Eb/dak	245 137	•	2642 1229	1292 632	?	86 <b>69</b> 5 <b>898</b>	59 48	19	593 454	11243 6781	11 <b>09</b> 1344	496 1616	17 15
OL/WYO	163	10	777	989	i	7845	34	í	289	9133	1614	960	11
EW HEX	133	10	1371	568	7	4288	27 295		222	5801	1839	766	10
ampbll Arson	139 64	7 16	1826 625	63 94	7	422 717	678	11	3361 5923	401 <i>0</i> 7266	757 1639	565 649	22 12
000	152	•	1436	166	6	622	864	. 10	8530	10595	1521	326	16
olk Ilby	184 75	•	1616 638	903 428	•	5334 2847	357 471	11 10	. 3813 4652	16763 8137	· 1276	21 <i>0</i> 533	19 16
AM HOU	77	10	753	676	ż	4426	21	16	206	5385	1642	447	16
TEWART . ENNING	195	7	1427 53	66 <b>8</b> 32		5 <b>078</b> 226	· 145 239	12 12	43 <b>0</b> 9 2 <b>846</b>	19814 3125	733 828	872 635	26 24
LISS	2	11	21	17	í	128	246	<b>~i</b>	2000	2149	1975	867	11
ORDON	225	7	1596	1241	7	9247	57	12	698	11541	649	782	25
MOX . WOOD	588 122	7	4 <b>69</b> 7 959	199 1525	7	1411 1 <b>8846</b>	271 123	12 11	3162 1299	867 <b>6</b> 123 <b>6</b> 4	6 <b>0</b> 3 934	648 462	23 19
CCLELM	151	7	1121	232	7	1591	36	12	418	313#	773	562	23
UCKER 1LL	345 23	8 9	2725 209	22 <b>9</b> 57	7	1547 353	134 143	12 10	1587 1361	5859 1922	948 1384	626 317	241 15-
CAD	2	16	29	9	7	61	374	10	3826	3901	1679	530	18
nad Rad	336 83	7	2496 714	33 1	7	226 5	412 489	12 10	4782 4161	75 <b>6</b> 3 488 <b>6</b>	773 1298	556 #	23. 17
UBTOT	-	•		32849			6561				1129	540	19
NT/IDA	161	11	1826	129	10	1279	933	9	7891	16196	2219	1695	3
TAH/NV	119	12	1376	95	10	911	616	7	4623	6309	2305	1572	4
rizona Alip	62 431	12 13	716 5431	189 446	9 1 <b>9</b>	1612 46 <b>8</b> 1	617 23 <b>64</b>	7	4449 12627	6778 22659	2300 2689	1182 1843	6
REGON	132	13	1692	78	11	868	956	7	6618	9170	2769	2146	5
ASHNTN MIN	7 <b>g</b>	13 12	886 49	82	11	929	1968	7	7932 446	9747 11 <b>642</b>	2712 2553	2218 148 <b>0</b>	3
rw in Ewis	27	13	341	1194 33	11	11147 375	228	7	1684	2455	2696	2231	7
RD	891	13	11686	77	19	786	1160	6	6636	19116	2880	1811	1
RSIDIO	81 135	13	1842 1531	39 98	19	4 <b>#4</b> 811	458 982	ì	2546 75 <b>69</b>	3991 9911	2785 2222	1856 1 <b>98</b> 6	8
DACHUC				18	19	186	379	Š	2077	3724	2689	1843	•
AAD	116	13	1462										
UACHUC AAD EAD	116	ii	22	302		3472	9	<u>7</u>	65	3559	2073	1389	6
AAD									65				

	1 MANT 885.			)\$T										
TION	LINES 1	insit Time	NCAD DAYS	NCAD LINES	TRANSIT TIME	NCAD DAYS	LINES	RANSIT TIME	NCAD DAYS	TOTAL DAYS	•	MILEAGE NCAD	RRAD	SHAD
Maine NH/Ver	454 7 <b>08</b>	7	3 <b>896</b> 45 <b>86</b>	42 69		423 671	19 39	14 14	267 528	35 <b>0</b> 5 527 <b>0</b>		543 418	1751 1625	
mass Conw/ri	194 1133	6	1236 7008	154 97		1483 916	46 49	14 13	629 661	25 <b>09</b> 7911		381 313	1589 1521	
NEW YORK	1460	6	8928	449	•	4150	147	13	1943	12548		287	1483	2917
PEMM NJ/DEL	2818 1115	6	158 <b>09</b> 6354	356 174		3 <b>6</b> 62 1536	82 58	13 13	1644 759	18266 7677		100 133	1208 1291	
ID/DC /A/W.VA	1161 1982	6	61 <b>89</b> 12125	136 197		1174 1582	45 57	13 13	58 <b>6</b> 718	7217 13679		194 288	1173 997	
. CARO	265	6	1681	189		1527	52	13	663	3210		372	1614	2743
S. CARO Mio	411 1452	7	2832 9220	176 217		134 <b>8</b> 1673	56 49	12 12	695 581	443 <b>6</b> 1 <b>6969</b>		574 374	858 877	
iich Indiama	128 1188	7	849 8115	161 152		1305	52 58	12 11	611 668	2262 9549		479 552	1 <b>025</b> 731	2374
LL.	37 17 <b>0</b> 2	7	272	165	7	1168	45	11	489	1818		748	645	2050
IIWW	325	ť	12733 2 <b>664</b>	263 236		1866	59 83	11	645 876	15142 5229		793 1 <b>858</b>	892 920	
OMA BAGG	156 3 <b>88</b>	7	1237 2522	69 1463		496 11842	51 534	13 13	65 <i>8</i>	2108 15505		958	683 1020	2742
EVENS	575	6	3646	151	10	1450	66	14	899	5623		43 <b>0</b> 371	1579	3867
RUM ICCOY	143 1816	6 8	891 14125	145 125		1328 989	37 59	13 11	48 <b>0</b> 633	2626 15556		331 903	1415 952	
ieroe Heridw	1955 842	6 7	16969 6824	268 97		2287	115 50	13	1483 509	13647		89	1183	2798
BLVOIR	3	6	17	75	- 8	73 <b>6</b> <b>636</b>	36	13	464	7876 647		672 125	#31 1162	2793
IX W\$TIS	1 <b>566</b> 92	6	6044 550	227 95		2025 804	76 63	13 13	994 029	7772 1515		134 267	1327 1158	
TACKSON	156 427	7	1633 2550	119		913	36	12	448	2161		574	163	2627
CEE POAD	1461	6	8303	114 58	,	951 519	35 43	13 13	455 556	3451 <b>#8</b> 77		241 127	1111 1335	
LEAD	347	5	1897	495		4203	153	13	1937	5440		47	1167	
USTOT	25888			6726			2356					412	1141	. 2656
	RRAD 353			RRAD	-		RRAD	••						
Plorida Beorgia	541	7	2777 3 <b>93</b> 2	1855 3525	7	13577 24924	79 - 11 <b>6</b>	12 12	957 1300	16739 29527		936 714	733 641	
Labana IISS	6 <b>64</b> 325	•	4646 264 <b>6</b>	23 <b>6</b> 7 2855	7	15689 17626	131 105	12 11	1523 1151	2 <b>6688</b> 2 <b>62</b> 74		871 1638	541 3 <b>66</b>	
Engl	299	7	2171	2633	7	13584	64	11	726	16616		711	497	2226
ENT I SSOUR	162 150	7	11 <b>02</b> 1176	682 973	7 6	6413 6178	34 44	12 10	4 <b>0</b> 1 454	7838 7418		541 927	715 374	
rkans Ouiska	196 390	8	1553 3347	1514 2921	6 6	8735 18161	41 90	1 <b>6</b> 11	430 1082	1 <b>886</b> 7 21195		1649 1201	159 325	1964
EXAS	447	10	4273	3676	6	19326	93	16	921	22718		1563	353	1691
kla Meas	196 245	9	1646 2 <b>64</b> 2	951 1292	6 7	5818 8689	125 59	16 16	1195 593	7728 18634		1300 1109	288 490	
RB/DAK OFW/JO	137 163	9 1 <b>6</b>	1229	632 989	8	5698 7845	48	. 9	454	6591		1344	1010	1528
EN MEX	133	is	1371	568	7	4200	34 27	8	289 222	8931 5393		1614 1839	96 <b>0</b> 766	
AMPEGL ARSON	139 64	7 19	1926 525	63 94	7	422 717	295 678	11	3361 5923	3332 6381		- 757 1639	585 849	
1000	152	9	1436	100	6,	622	864	10	0530	6942		1521	326	1682
Polk Rilby	184 75	9	1616 638	903 420	6	5334 2847	357 471	· 11	3813 4652	853 <b>6</b> 6549		1276 1174	21 <b>8</b> 533	
SAM HOU STEWART	77 195	1 <b>0</b> 7	753 1427	676 6 <b>68</b>		4426 5078	21 345	10	286 4389	5067 9233		1642 733	447 872	1668
Benn [ Mg	7		53	32	, ,	226	239	12	2846	1961		826	635	2433
BLISS CORPON	2 225	11	21 1596	17 1241	<b>8</b> 7	128 9247	24 <b>8</b> 57	8 12	2 <b>000</b> 69 <b>8</b>	1947 11348		1975 649	867 782	
MAN BRO	3 <b>8</b>	17	1117	1 1 3 3	ì	1000	57 330	13	3363	1 1 1 1 1 1		1889	148	
MAD	336	7	2496	33	7	226	412	12	4782	5343		773 1 <b>208</b>	556	
RAD	83		714	32849	5	5	4 <b>09</b> 	L <b>G</b>	4161	2633		1129	540	
SUBTOT	7 <b>035</b> Shad			SHAD			SHAD							
NT/IDA	161	11	1828	129	:3	1279	733	3	7891	9295		2210	.695	
TAH/NV	119	12	1376	95	10	911 1612	616 617	7	4023 4449	5420 6259		2305 2300	.572 1182	693
rizona Alip	62 431	12 13	716 5431	189 446	10	4601	2304	5	12627	17433		2689	1843	52
REGON	132 70	13	1692 886	78 32		86 <b>8</b> 329	956 1068	7	661 <b>8</b> 7932	9 <b>662</b> 9 <b>66</b> 1		2769 2712	:146 -218	173
THE IN	4	12	49	1194	9	11147	76 228	6 7	446 1684	8 <b>67</b> 2 2127		2553 2696	14 <b>88</b> 2231	
EN IS	27 891	13 13	341 11 <b>686</b>	33 77	10	375 788	1166	6	6636	12174		2886	1811	. 141
REIDIO	81 135	13	1842	39 98		4 <b>64</b> 811	45 <b>8</b> 982	6 8	2546 7569	3213 9365		2785 2222	1856	877
HUACHUC SAAD	116	13	1462	18	10	186	379	5	2677	2811		2689	1843	52
TEAD	2	11	22	387		3472	9	7	65 	2833		2073		
SUBTOT	2231			2866	l		9780	TOTAL	DATE	629425				

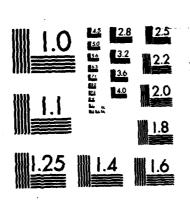
AVERAGE DAYS

6.53745

35154

MAIME MH/VER MASS COMM/RI MISS COMM/RI MISS MISS MISS MISS MISS MICH INDIAMA ILL. MISC MICH INDIAMA ILL. MISC MISM MISC MISC	454 788 194 1133 1468 2818 1115 1101 1992 265 1452 128 37 1792 128 156 163 163 164 195 166 195 166 195 166 195 166 195 166 166 176 176 176 176 176 176 176 176	7 6 6 6 6 6 6 6 6 6 7 7 7 7 7 8 8 7 7 6 6 8 6 7 7 7 7	3690 4586 1236 7868 8928 15899 6334 6189 12125 1681 9228 849 8115 2772 12733 2664 1237 2522 3646	42 69 154 97 445 356 174 138 197 181 152 165 263 238 69	18 18 19 9 9 9 9 9 9 9 8 8 8 7 7	423 671 1483 916 4158 3862 1536 1174 1582 1527 1673 1385	19 39 46 49 147 82 58 45 57 52	14 14 13 13 13 13 13 13	528 629 661 1943 1044 5 759 586	5779 3347 8586 15829 19915 8649 7942	543 4418 381 313 287 100 133 104 208	1625 1589	3846 3884 3822 32917 2739 2867 2795
MASS CONM/RI MEM YORK FERM MJ/DEL MD/DEL MD/DE MD/DE MD/DE MICH INDIANA ILL. MISC MISC MISC MISM IOMA BRAGG DEVENS DEVENS DEVENS DEVENS SHERIDM MEADE SHERIDM BELVOIR DIX EUSTIS LEE TOAD	194 1133 1466 2818 1191 1195 1191 1992 265 1432 128 137 1792 1285 156 398 1985 1995 191 1955 842 1955	6 6 6 6 6 6 6 6 7 7 7 7 7 8 8 7 7 6 6 8 6	1236 7880 8928 15889 6354 6189 12125 1681 9228 849 8115 272 1273 2664 1237 2522	154 97 445 356 174 138 197 189 217 161 152 165 263	16 9 9 9 9 9 8 8 8 7 7	1483 916 4158 3862 1536 1174 1582 1527 1673 1385	46 49 147 82 58 45 57	14 13 13 13 13 13	629 661 1943 1644 759 586 718	3347 8586 15829 19915 8649 7942	381 313 287 100 133 104	1625 1589 1521 1483 1208 1291 1173	3846 3886 3922 3917 2739 2867 2795
NEM YORK PENN YORK PENN YORK MJ/DEL M	1466 2810 1113 1101 1902 265 1452 128 1100 1100 1100 1100 1100 1100 1100	66666777778876686	8928 15889 6354 6189 12125 1681 9228 849 8115 272 12733 2664 1237 2522 3646	445 356 174 138 189 217 161 152 163 263	9 9 9 9 8 8 8 7 7	4158 3862 1536 1174 1582 1527 1673 1385	49 147 82 58 45 57	13 13 13 13 13	661 1943 1644 759 586 718	8586 15829 19915 8649 7942	313 287 188 133 184	1521 14#3 12## 1291 1173	3022 2913 2739 2867 2795
PEMM MJ/DEL MD/DC VA/W.VA MO CARO OHIO MISC MISOIAMA ILL. MISC MISM BRAGG DEVEMS DEVEM	2618 11191 1992 265 1452 128 1188 17 1762 325 156 575 143 1616 1955 452 3 1866 92	66666777778876686	15889 6354 6189 22125 1681 9228 849 8115 272 12733 2664 1237 2522 3646	356 174 138 197 189 217 161 152 165 263	9 9 9 8 8 7 7	3062 1536 1174 1502 1527 1673 1305	82 58 45 57 52	13 13 13 13	1644 759 586 718	19915 8649 7942	100 133 104	14#3 12## 1291 1173	291 273 286 279
MD/DC VA/M.VA	1161 1902 265 1452 128 1108 37 1762 325 156 386 575 143 1816 1955 842 3	6666777778876686	6189 12125 1681 9228 849 8115 272 12733 2664 1237 2522 3646	138 197 189 217 161 152 165 263	9 8 8 8 7 7	1174 1502 1527 1673 1305	45 57 52	13 13 13	759 586 718	8649 7942	133 1 <b>9</b> 4	1291 1173	2867 2795
/A/W.VA  4. CARO  HICH  HICH  HICH  HICH  HICH  HISH	1982 263 1452 128 1188 37 1782 325 156 388 575 143 1816 1955 842 3	66677778876686	12125 1681 9228 849 6115 272 12733 2664 1237 2522 3646	197 189 217 161 152 165 263	8 8 8 7 7	1582 1527 1673 1385	57 52	13	718			1173	2795
OHIO HICH HICH HICH HICH HISTAMA LLL. HISC HISM LOWA BRAGG DEVEMS BRAGG DEVEMS HICCOY HIADE	1452 128 1188 37 1782 325 156 388 575 143 1816 1955 842 3 1866 92	6 77 77 8 8 7 6 8	9228 849 8115 272 12733 2664 1237 2522 3646	217 161 152 165 263 23#	8 8 7 7	1673 1385							
IMDIAMA ILL. MISC MISC MINN IONA BRAGG DEVENS DEVEN	128 1188 37 1762 325 156 388 575 143 1816 1955 842 3 1868 92	7 7 7 7 8 8 7 6 6	849 0115 272 12733 2664 1237 2522 3646	161 152 165 263 23#	8 7 7	1305	47		663	3071	372	1814	
ILL. WISC HIM IOWA HIM IOWA HIM IOWA HIM IOWA HIM IOWA HEADS SHERIOM HEADS SHERIOM HEADS SHERIOM HEADS HIR IOWA HEADS HIM IOWA HI	37 1702 325 156 308 575 143 1816 1955 842 3 1060 92	7 7 8 8 7 6 8 6	272 12733 2664 1237 2522 3646	165 263 23#	7	1110	52	12 12			374 479	877	2416
Wisc Himm Bragg Devens Devens Devens Heade Sherion Belvoir Dix Eustis Lefe Toad	1762 325 156 388 575 143 1816 1955 842 3 1868 92	7 8 7 6 8 6	12733 2664 1237 2522 3646	263 23#		1112	58	11	660	9886	552	1025 731	237 6 2238
IONA BRAGG DEVENS DEVENS DEVENS DEVENS MEADE SHERION BELVOIR DIX EUSTIS LUST TOAD	156 388 575 143 1816 1955 842 3 1868	8 7 6 6 8	1237 2522 3646			1160 2038	45 39	11 11		193 <b>8</b> 15416	748	645	2056
DEVENS DROM MCCOY MCCOY MCADE SHERIDM BELVOIR DIX EUSTIS EUSTIS EUST TOAD	388 575 143 1816 1955 842 3 1868	7 6 6 8 6	2522 3 <b>646</b>		•	1000	83	11	676	5346	793 1 <b>65</b> 8	892 928	2 <b>6</b> 73 1932
DRUM MCCOY MEADE SHERION BELVOIR DIX EUSTIS LEE TOAD	143 1816 1955 842 3 1868 92	6 8 6		1463	7	496 13842	51 534	13 13		2382 212 <b>0</b> 6	950	683	2742
MEADE SHERION BELVOIR DIX EUSTIS LEE TOAD	1816 1955 842 3 1868 92	6		151 145	10	1456	66	14	899	5996	43 <b>6</b> 371	1028 1579	2768 3867
SHERIOM BELVOIR DIX EUSTIS LEE TOAD	842 3 1868 92		891 14125	125	9	1328	37 <b>59</b>	13 11		2699 15747	331	1415	2824
Belvoir Dix Eustis Leb Toad	1060 92		18989 6824	268 97	9	2287	115	13	1483	14688	9 <b>6</b> 3	952 1183	1997 2798
EUSTIS LEE TOAD	92	6	17	75		736 636	5 <i>0</i> 36	1 <i>8</i> 13	5 <b>69</b> 464	7 <b>268</b> 1117	672	831	1796
LEE TOAD		6	6844 558	227 95	9	2025	76	13	994	9664	125 134	1162 1327	2793 2867
		6	2558	114	•	864 951	63 35	13 13	829 455	2191 3 <b>964</b>	267	1156	2895
	1461 347	6	8363 1897	58 495	•	519	43	13	556	9377	241 127	1111 1335	284# 2811
SUBTOT	25327	,		6431	•	4263	153 2258	13	1937	●●37	47 461,310	1167	2712
				amad Gimes								AMAD HILEAGE	
PLORIDA	353		2777	1855	6	11453	79	12	957	15187		-	
GBORGIA S. CABO	541 17 <b>6</b>	7	3932 1213	3525	é	19690	110	12	1366	24922	936 714	3 <b>09</b> 91	2567 2461
ALABAHA	604		4646	431 23 <b>6</b> 7	6	2537 13 <b>02</b> 3	56 131	12 12	695 1523	4445	574	368	2622
HISS Temm	325 299	<b>8</b> 7	2646	2855	6	17501	105	ii	1151	19192 21379	071 1030	113 303	2327 2 <b>68</b> 2
KENT	162	7	2171 11 <b>6</b> 2	2033 802	6	12931 5 <b>686</b>	64 34	11 12	726	14928	711	214	2226
Tackson Campbel	119 139	7	826	156	6	920	36	12	461 448	71 <b>89</b> 2195	541 574	41 <b>6</b> 313	23 <b>89</b> 2627
STEWART	195	ż	1926 1427	66 <b>8</b>	6	392 4120	295 345	11	3361	4776	757	269	2242
DENNI I NG SORDON	7	•	53 .	32	6	184	239	12 12	43 <b>69</b> 2846	9856 3883	733 828	334	2648
RMOX	225 588	7	1596 4 <b>69</b> 7	1241	6	7 <b>464</b> 1259	57	12	698	9698	649	148 232	2433 2556
CCLELN RUCKER	151	7	1121	32	5	1243	27 <u>1</u> 36	12 12	3162 418	8518 2782	6 <b>8</b> 3 773	365	2343
MAD	345 33 <b>6</b>	6 7	2725 24 <b>96</b>	22 <b>6</b> 33	6	1293 176	134	12	1587	5665	948	199	2321 24 <b>08</b>
UBTOT	4565			16698	•	270	412 24 <b>8</b> 4	12	4782	7454	773	•	2321
-				rrad Lines							751	226 RRAD	2493
I SSOUR	156	8	1176	973	6	6178						ILEAGE	
RKAMS	196	•	1553	1514	6,	8735	44 41	10 10	454 43 <b>8</b>	78 <b>09</b> 1 <b>0</b> 717	927	374	1847
ame iuo. Baxe	39 <b>0</b> 447	9 1 <b>6</b>	3347 4273	2921 3 <b>870</b>	•	18161	98	11	1682	22590	1 <b>949</b> 12 <b>0</b> 1	159 325	19 <b>64</b> 2111
KLA	186	9	1646	951	6 6	1932# 5818	93 125	10	921 1195	24514 8659	1563	353	1691
ANSAS EB/DAK	245 137	8 9	2 <b>842</b> 1229	1292 632	7 8	8609	59	78	593	11243	13 <b>66</b> 11 <b>9</b> 9	288 49 <b>9</b>	1563 1743
OL/WYO	163	19	999	989	8	5#98 7#45	4 <b>8</b> 34	9	454 289	6781 9133	1344 1614	1 <b>6</b> 16 966	1528 1170
ew Mex Arson	133 64	16 16	1371 625	568 94	7 8	42 <b>98</b> 717	27 678	8	222	5891	1839	₹66	1074
00D	152	9	1436	100	6	622	864	10	5923 653 <b>8</b>	7266 1 <b>8</b> 595	1639 1521	849 326	1258 1682
olk Mešou	184 75 2	₹ <b>9</b>	1616 938 721	993	6	3334	₹ <u>₹</u>	į	1253	10763	1375	119	979
EASICOD RAD	123	10	200 714	15 <b>8</b>	9 <b>∦</b> 5	10000	300 469	1 <b>5</b> 10	3668 4161	1,002	1066 1298	94 <b>6</b>	1988
ubtot	2765	,		16712	,		4249		4101	1000	1388	485	1635
HT/IDA	161	11	1826	129	10	1279	933	8	7891	10190	2210	1695	837
VW/HAT	119 62	12 12	1376 716	95 189	16	911 1612	616 617	7	4 <b>82</b> 3 4449	6389 6778	23 <b>0</b> 5 23 <b>00</b>	1572 1182	441 693
rizona NLIP	431	13	5431	446	10	4601	2364	5	12627	22659	2689	1843	52
regon Ashnth	132 70	13	1692 886	78 82	11 11	86 <b>8</b> 92 <b>9</b>	956 1 <b>068</b>	7	661 <b>8</b> 7932	917 <b>0</b> 9747	2769 2712	2146 2218	583 773
RW IN	4	13 12	49	1194	9	11147	7€	6	446	11642	2553	1480	380
EN IS	27 891	13	341 11686	33 77	11	375 788	228 1166	7	1684 6636	24 <b>00</b> 1911 <b>0</b>	2696 28 <b>80</b>	2231 1811	758 141
RSIDIO	81	13 13	1842	39	15 16	484	458	6	2546	3991	2785	1856	81
	135	11	1531	90 10	8	611 186	982 379	<b>8</b> 5	75 <b>69</b> 2 <b>6</b> 77	9 <b>9</b> 11 3724	2222 26 <b>89</b>	1086 1843	877 52
	116 2	13 11	14 <b>62</b> 22	383	1 <b>6</b> 9	3472	3/9	7	65	3559		1389	692
Jachuc Nad Ead								•	0.3	3227	2973	*102	374
MAD	2231			2860			9786	TOTAL C		3339 696884	2973 2529 1268	1719 898	489 1797

WHOLESALE STOCK POSITIONING AND DISTRIBUTION POLICIES
PHASE I VOLUME 2 METHODOLOGY(U) LOGISTICS STUDIES
OFFICE (ARMY) FORT LEE VA P E GROVER AUG 85
F/G 15/5 AD-R162 916 3/3 NL UNCLASSIFIED



MICROCOPY RESOLUTION TEST CHART NATIONAL BUREAU OF STANDARDS-1963-A



MODE	CESS LAY	N TROCKL	DAD OST				•				•		
DESTINA- TION	LIUSS	TRANSIT TIME	DAYS	LINES	TRANSIT TIME	PRAD	SWAD LIMES	TRANSIT TIME	SMAD DATS	TOTAL DAYS	HILENGE HCAO	MILEAGE RRAD	HILEAGE SNAD
MAINE MM/VER	454 7 <b>88</b>	7	3 <b>696</b> 45 <b>8</b> 0	42 69	16 18	423 671	19		26°				
COMP/RI	194 1133	•	1236 7 <b>908</b>	154 97	16	1483	46		62: 66:	3347	30	150	9 3884
PENN YORI	2018	•	8920 15809	445 356	j	4150 3062	147 82	13	1941 184	15029	281	146	3 2917
MO/DC	1115 11 <b>0</b> 1	•	6354 6189	174 138	į	1536 1174	58	13	791	1649	13:		
YA/W.YA H. CABO	1902 265	•	12125 1601	197 189	Í	1502	45 57	13 13	586 710	14425	280	99	
MICH	1452 120	6	9228 849	217 161	i	1527 1673	52 49	13	663 581	11473		101	1 2743
INDIAMA	11 <b>00</b> 37	7	0115	152	7	1305	52 58	11	611 660			162	3 2374
WISC MINN	1702 325	7	272 12733	165 263	7	1168 2030	45 59	11	489 649		746	64	2056
IOWA BRAGG	156	:	2664 1237	236 69	* 7	1800 496	\$3 \$1	11	876 656	5340	1050	926 68	1932
DEVENS	386 575	7	2522 3646	1463 151	10	11842 1456	534 66	13	6042	21266	430	1020	2768
HCCOY	143 1816	•	891 14125	145 125	:	1326	37 59	ij	4 <b>00</b> 633	2699 15747	371 331	1419	2824
Heads Sneston	1955 #42	6	10909	268 97	•	2287 736	115	13 10	1403	14680	903	952 1183	2798
Belvoir	1666	•	17 6844	75 227	ţ	636 2025	36 76	13	509 464	72 <b>60</b> 1117	672 125	83) 1167	2793
eustis Les	92 427	6	534 2538	95 114	Í	664 951	63 35	13 13	994 829	9664 2191	134 267	1327 1150	2895
TOAD LEAD	1461 347	•	8383 1897	58 495	į	519	43	13	455 554	3964 9377	241 127	1111	2611
SUBTOT	25327	·		4431	•	4263_	153 2258	13	1937	8637	47	1167	2712 2 <b>658.</b> 41
				CINES MAD								AMAD HILEAGE	
PLOSIDA GEORGIA	353 541	•	2777 3932	1855 3525	•	11493	79	12 .	957	15167	936	309	2567
S. CARO	176 604	Ź	1213	411 2367	•	19696 2537	116 56	12 12	1366	24922 4445	714 574	91 308	2461
HISS TRAN	125 299		2646 2171	2855		13023 17501	131 185	12 11 11	1523 1151	19192 21379	671 1038	113	2327
ERMT JACKSON	162 119	· ;	1102	2033 802	•	12031 5686	64 34	12 12	726 4 <b>6</b> 1	14920 7189	711 541	214 410	2226 2309
CAMPBLL	139 195	7	1056	156 63	•	920 302	36 295	11	448 3361	2195 4770	574 757	313 269	2627 2242
SEMPLING CORDON	7	7	1427 53	32	•	412 <b>6</b> 184	345 239	12 12	4309 2845	9056 3003	733 828	334 148	2648
KNOX	225 580	7	1596 4 <b>69</b> 7	1241 199	•	74 <b>64</b> 1259	57 271	12	698 3162	9699 8519	649 603	232	2433 2556
MCCLRLM RUCERR AMAD	151 345 336	7 8 7	1121 2725	232 220	5	1243 1293	36 134	12 12	418 1507	2782 3663	773 948	365 6 199	2343 2321 24 <b>68</b>
SUBTOT	4565	•	2496	33 16698	5	176	412 2464	12	4762	7454	773	•	2321
		-•		RRAD LINES			2,00				751	226 RRAD MILENGE	- 2463
HISSOUR AREAMS	156 156	:	1176 1553	973	•	6178	44	10	454	7809	927-	374	1847
LOUISMA TEXAS	396 447	9 '	3347	1514 2921		8735 18161	41 98	16 11	436 1682	16717 22 <b>59</b> 6	1849 1281	159 325	1964 2111
ORLA - RAMSAS	186 245	1 <i>0</i>	4273 1646 2 <b>6</b> 42	3 <b>676</b> 951	6	19326 5818	93 125	18 18	921 1195	24514 865 <b>9</b>	1563 13 <b>66</b>	353 288	1691 1563
HED/DAR	137 192	•	1229	1292 211	7	1609 1702	59 40	16	593 454	11243 3385	11 <b>69</b> 1344	496 1818	1743 1528
POLE	184	•	1436 1616	100 903	•	622 3334	964 357	16 11	8538 3813	10595 10763	1521 1276	326 216	1682 1978
SAM HOU	75 77	10	63 <b>6</b> 7 <b>53</b>	42 <b>6</b> 676	7	2647 4426	471 21	16 16	4652 206	8137 5385	1174 1642	533 447	1600
F. MOOD	122	11	21 959	17 1525	8 7	128 10046	24 <b>0</b> 123	11	2006 1299	2149 123 <b>6</b> 4	1975 934	807 462	1169
CCAD	23 2	9 18	269 26	57 9	6 7	353 61	143 374	16 16	1361 3820	1922 3961	1384 1679	317	1546
RRAD	63	9	714	1	\$	5	489	16	4161	4886	1200	53 <b>0</b>	1865 1796
SUBTOT	2465			14648			3516				1336	414	1723
COL/WYO				CINES	_							TEAD	
HEN HEX	103 133	10 16	9 <b>99</b> 1371	9 <b>89</b> 5 <b>68</b>	7	6718 3989	34 27	8	289 222	7998 5582	1614 1839	535 623	1178 1874
Carson Dak	64	16	625 <b>6</b>	94 421	7	651 3287	678	•	5923	7200 3207	1639	588 914	1258
SUBTOT	300			2672			739		•		1697	665	1167
							TEAD				2077	RRAD	TEAD
MWT/IDA		••	1414				LIMES					ILEAGE (	
UTAM/HV	161	11	1020 1376	. 95	10 19	1279 911	933 616	7	61 <b>86</b> 3351	92 <b>0</b> 5 563 <b>8</b>	221 <del>8</del> 23 <b>6</b> 5	1695 1572	446 37
ARI SOMA HUACHUC	135 135	12 11	716 1531	189	;	1612 811	617 982	7	4423 7527	6751 9868	23 <b>00</b> 2222	1182	677 961
TEAD	2	11	22	302	•	3472	,	5	48	3542	2073	1389	•
SUBTOT	479			193			3157				3222	1305	484
							shad Lin <b>es</b>					1	Shad Hileagr
CALIF ORSOOM	431 132	13 13	5431 1692	446 78	10	4661	23 <b>64</b> 956	<b>S</b> 7	12627	22659	2689	1843	52
WASHUTW I HW IN	76	13	196	92 1194	11	929	1868	7	7932	9170 9747	2769 2712	2146 2218	583 773
LEFTS	27 691	13	341	33	11	11147 379	70 228	7	1684	11642 2400	2553 2 <b>696</b>	14 <b>00</b> 2231	386 758
PREIDIO SAAD	81	13 13	11686	77 39	10 10	786 484	1166 450	•	6636 2546	19110 3991	2000 2705	1811	141
	116	13	1462	18	10	196	379	<b>s</b> .	2677	3724	2689	1843	52
SUBTOT	1752			1967				POTAL DAY		693531	2722 1521	1929	353 1451
TOTAL	34000			42761				POTAL LIW			55-60 AR	55-60	
										90333			

	rous LESS THAI	TRUCKLO	AD OST					•			•		
PIQU	LINES UCAD	TRANSIT TIME	DAYS	read Lines	TRANSIT TIME	RRAD	CINES	TRANSIT TIME	SMAD DATS	TOTAL I	HCAD HCAD	MILEAGE RRAD	HILEAGE SHAO
Maine Wi/Ver Mass	454 788 194	7	3090 4580 1236	42 69 154	10	423 671 1483	19 39 46	14 14 14	267 528 629	3779 5779 3347	\$43 418 301	1625	3848
COMB/SI	1133 1468 2018	•	7000 8920 15809	97 445 354	;	916 4130 3062	49 147 82	:: :: ::	661 1943 1044	0386 15629 19915	313 287 196	1521	3022 3027
MD/DEL MD/DC VA/W.VA	1115 1161 1982	i	6354 6109 12125	174 136 197	•	1536 1174 1502	58 45 57	is 13 13	759 506 718	8649 7942 14425	133 184 288	1291 1171	2967 2795
H. CARO BRAGG DEVENS	265 388 575	6 7	1601 2522 3646	189 1463 151	1	1527 11042 1456	52 534	13 13	663 6642 899	3871 21206 5996	372 436 371	1014	2743 2768
DECYOLS HENDE DECYOLS	143 1955		991 10909	145 268 75	;	1328 2287 636	66 37 115	14 13 13	496 1483 464	2699	331 89 125	1415	2824 2798
OUET18	1066 92 427	į	6644 550 2550	227 95 114	i	2625 664 951	36 76 63 35	13 13 13	994 929 455	1117 9064 2191 3964	134 267	1162 1327 1150	2867 2895
LEE TORO LEAD	1461 347	į	6363 1897	30 495	i	519 4207	193	i3 13	956 1937	9377 9637	241 127 47	1111 1335 1167	2011
SUBTOT	17661		_	4952			1752				255.65 LBOA	1365.45	2074.4
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<b>PLORIDA</b>	62W80 393	•	2777	1893	•	11453	79	12	957	15167	HILENGE 936	HILENGE 309	2587
GEORGIA S. CARO ALABAMA	541 176 564	77	3932 1213	3525 411 23 <b>0</b> 7	:	19696 2537 13623	118 96 131	13	957 1300 695 1523	2492 <u>2</u> 4445 19192	714 574 871	91 306 113	2461
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SUBTOT	300			421 2072	•	3287	739		•	3287	1697	914 665	1167
							TRAD LIMES					RRAD MILEAGE	TRAD HILEAGE
HWY/IDA UTAR/WY ARITOMA	161 119 62	11 12 12	1828 1376 716	129 95 189	10 16	1279 911	933 616 617	7 5 7	61 <b>66</b> 3351	9285 5638	2210 2305	1695 1572	446 37
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CERTS ORD PRSIDIO	27 891 81	13 13 13	341 11686 1642	33 77 39	11 10 10	375 700 404	229 1166 450	7	1584 6636 2546	2460 19116 3991	2696 2696 2600 2705	1406 2231 1011	380 738 141
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COMMAND TORY	1133 1466	į	7668 8928	154 97 445	10	1483 916 4158	46 49 147	14 13 13	629 661 1943	0586	38 31	1 150 3 152	9 3 <b>68</b> 4 1 3 <b>62</b> 2
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BELVOIR MEADE BELVOIR	143 1955	•	10909	145 268	;	1320	37 115	13 13	406 1483	2699	37 33	1 141	5 2824
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CMPSLL	63 199	į	376 1118	139		1844 843 3719	34 295 271	12 11 12	401 3361 3162	6250 4500 7999	46 231	269	2389 2242
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STIMART BERNING GORDON	195	7 8 7	1427 53	668 32	6	412 <b>0</b> 184	345 239	12 12	448 43 <b>89</b> 2846	2195 9056 3 <b>60</b> 3	574 733 828	313 334 148	2648
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RELEY 3606 6 4 2070 4 2 1184 6 4 23576	
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OND 1610 8 6 246 7 5 2641 2 0 10090 PRST010 157 8 6 174 7 5 2292 2 0 1012	
HSACRIC 385 8 6 476 5 3 3497 5 3 12935 SAMB 661 8 6 406 7 5 2009 2 0 5996	
1920 387 6 399 6 7/4 7 3000	
ANIW 150165 99412 33123 10,197 (2012) 50001.	
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HODE	A	LT. NO ON	8	
OST ASSU	MING PE	RPBCT STO	CK POSI	PIOW
DESTINA		UPS TRA	MSIT THE	TOTAL DAYS
	1145 1567 1642 2628 7079 5193 4763 2897 3665 3638 2561 2149 1519 3642 2166 4916 4916 4916 4916 4916 4916 4916 4	### ### ##############################	######################################	TOTAL DAYS 2297 313-3 1844 2626 7877 ( 3031 3131 4299 3031 7286 6480 7577 8155-594 15392 4931 3131 11577 6
CEE TOAD CEAD	2463 3147 2283	4 3 2 2	i	2463
	1 <b>0400</b> 7	4	•	
	rrad Lines			
PLOBIDA GEORGIA ALARAM HIES TENN ESSOUR AREAMS LOUISMA TERRO OULLA	2989 5531 45283 25789 2783 2254 3544 3954 3288 2438 1651 1927 6713 4264 4783 4433 4433 4433 4467 167 1649 167 1749 1874 1874 1874 1874 1874 1874 1874 1874	544345333333355453244553443342	322123161615133238626322331221126	8727 11062 9954 68157 2793 3544 62279 62224 7314 3153 3792 17763 620139 5174 8528 14349 13299 4965 2214 1449 1226 2214
SUSTOT 1	113636 SERO			
188 <b>7</b> / TAL	6129	•	•	
HMT/IDA UTAM/MV ARIZOMA CALIP OREGON MASHETH IBMIN IBMIN LENIS ORG PREIDIO HUACHOC SAAD TEAD TOTAL AVERAGE	9129 3218 2255 9128 3538 2799 2474 5184 4497 2623 4298 3136 83844	5 4 3 4 3 4 2 2 5 2	3 2 2 1 2 2 1 2 2 5 6 6 7 7 6 2 2	10307 6420 4510 8128 7066 5590 2474 10206 0 12876 1606
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ESTINA	MCXD		TEAMSIT	NCAU -	MAD		TRABBLT		SHAD		TRANST	ENAU	TOTAL	
TION	CIMES	ZONE	TIME	DAYS	LIMES	TOPE	TIME	DAYS	LINES	SOME	TIME	_ DAYS	DAYS	·
MAAR	942 1287			1884 2574	128	7		648 728	<del> 75</del>	;	:	45 <i>0</i> 	2974 3896	
ASS COS/RI	1316		1	1316	352 341	- :	4	1468	· 180	;		1000	3004 1303	
gan . SM AOS	- 5391 - 7416		1	5391	1232			4928 2312	<del>199</del>	8			13055 3506	
3/0EL 3/0EL	3 <b>054</b> 1711				599 291		{	2396	250	i	{	1500 - 576	3896 1734	
CANO	2336		1	2336	519 		i	1557	216			1296	5183 	
nto ICH -	1561 1133-	}	2	3002 2200-	461			1303	187	i		1122	5567 - 3787	
DIAMA	2968 1312-			5936	460		3	1300	214			1204	1600	
tec	1891		3	<del>1930</del> 5673	475	- 5		1425	150	7		790	64 <del>02</del> - 7888	
	1584	- 3	3	4752	287	- 7	ž	\$74	110	<del>-                                    </del>	;	596	<del>9994</del>	
17216 17216	1943 4216	3	i	<del>- 3886 -</del> 4218	316		;	72001 2064	21 <b>9</b>			<del></del>	- <del>20323</del> 7534	
CCOX	<del>268</del> 1- 3052	3		9156	<del> 302</del> 552			1204- 1656	<del>177</del> 254	;		1902 1276	12002	
IERION IERION	9164 2375	7	2	4750	1231 396	<del></del>	3	1188	163	;	<del></del> i	3000 815	6753	
LVOIR	2890 4154				278 586	<u></u> ;	<del></del> i		<del></del>		<del>i</del>	<del>792</del>		
MTIS .	2054	<del>-</del>		<u>121</u> - 2056	<del>943</del> 292		<del></del>	2172	139	<del></del>	—÷	- 994	3247	
NO NO	2362				234	- ;		1170	115	<del>- ;</del>	<del>;</del>	1728	3622 2904	<del></del>
	76	3	<u> </u>		1463			5612	- 864			4824	16436	
mto!	72836				10051				7920					
					AMAD UZNES			AMAD						
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CARO	424 -	<u> </u>		- 1332 - <b>248</b> -	4686 	1	i		259 103	i		1554	2006	
<b>APANTA</b>	668			2004	3662	2	i	1974	258			1548	- 3000 3552	
37	146	-	2	992	5073	3	i	2013	iii	7		1919	<del>-11245</del> 3571	
erson Ceson	- <del>-622</del> - 426				- <del>2289 -</del> 21 <b>8</b> 5	<del> }-</del>	<u>-</u> -	<del>2189</del> - 21 <b>85</b>				684	3641	
npoll" Wart	195 · 2833	4	2.		<del> 690</del> 2736	3	1	458- 2736	1144			<del>6258</del> -	-7306 15266	
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CLEL	2717	•		<del>- 5434 -</del> 864	721	<del>i</del> -	🚉 -	84 <del>2-</del>	875			1302 5250-	6863 11525	
CKEF	789	<del>-                                    </del>	<del></del>	2127	788	<del> i</del>		<u>-</u> -	<del>- 325</del> -				1452 <del>+077</del>	
-		•	•	612	39	2	•	•	055	•	•	5136	5742	•
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		··			RRAD 121100			RRAD - DATO						
3800R	-302-	<del>,</del>		900-	-2272-	<del></del>	<del></del>	2272-	-129-				3083-	
ikaus Vilsua -	- 353 - 4 <b>69</b> -	<b>5</b>	<del>-</del>	1059 1076-	1787 <b>-2916</b>	3 .		2916	114		·\$	570 799	1629 — 55 <b>0</b> 7	
exae La	651 1162	4	1	2664 	3645 1266 -			- 1266-	260		. <u> </u>	1300 1472 -	3964 7366	
MEAS B/DAR	596 272		i	1708	2532		ž	5064	160	6		640	7492	
K/WYO	453	7		2265	1855	5		<del>5331</del> 5565	136	5	3	390	8228	
m mex Arson	2802	7	5	14010	<del>931-</del> -	}	<u>.</u>	- 2793 - 2262	2345	5- 5	—— <u>3</u> .	7035	<del>3</del> 153 - 233 <b>6</b> 7	
CK	- 163 - 2357	6		9428	<del>- 372</del> 2688	<u>2</u> 2	g.	6	· 23 <del>91</del> 775	7- 7	<del>\$</del>	- <del>-11955-</del> 3875	- 12 <b>667</b> 133 <b>6</b> 3	
M HOU	263	7	5	1315	<del>-2978-</del> 1552	<del>-</del>	3	+156	112	7	;	<del>- 1736 -</del> 560	23676 1875	
BBI	-3161 774	7 5	· š·	-15 <b>005</b> 2322	224 3948	<del>-</del>	<del></del> i-	3948	<del>- 079 -</del> 243	<u></u>	<u>;</u>	<del>2637-</del> 1215	-10096 - 7485	
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RD			<del></del>	-246		<del></del> ∔	<del></del> ÷		1307	<del></del>	- ;	6535 3466	15846 3646	
BTOT	20300-				<del>20221</del> —				11754					
T/IDA-	962		<b>•</b> -	5372				2492-	1944			14032-	20696	B
TROMA	284	<del></del> ;		1764	313 232	:	‡	1252 720	2613 	-+		5226 3712-	- 3642-	
egow —	- 325 -			4836 <del>1914</del>	1122		š	5616 1970	6193	- 3	1	6193 	16633 <del>9</del> 278	<u></u>
Snwth Win	259 	🗜	· <u>.</u>	1554 <del>5622</del>	312 <del>-1923</del>	j		1566 761 <del>9</del> -	2228		. i	4456	7576 -13251-	
WIS	3011 1010			10066	21.5	<u>,                                    </u>		1065	1886	i	2	3760	22891	
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ACRUC AD	661			3966 3966	466	7		<del>- 1420 -</del> 2030	2069	- 3	•	•	-139 <del>99</del> 5996	
NO	<del></del>			2202-	— 305 —	-	4	-1466	71				<del></del>	
5101	9494				6359				33197		TOTAL	DATE	390402	
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19008	OPS A	LT. NO TI	HREE 0	<b>e</b> r									
DESTINATION OF THE PROPERTY OF	UCAD GINES	UPS TRE	MSIT Pime	UCAD DAYS	READ	UPS TI ZOMB	rameit Time	READ DAYS	Shad Lines	UPS TRA	MSIT Ime	SMAD DAYS	TOTAL Days
MATER MATER	942 1207	4	2	1884 2574 1316	128 182 352	7	5	649 729 1489	75 96 186	i	6	456 588 1888	2974 3896 3864
MAN TOS COMP\S MVER	5391	3 3 3	1	2135 5391	341 1232	•	į	1364	144 456	į	6	864 2736	4363 13055
MJ/DEL MD/DC	4416 3854 1711	2 2 2	i	- 1	578 599 291			2312 2396 1164	199 256 95		6	1194 1366 576	35 <b>66</b> 3896 1734
WA/W.W	2336	3	1	2330 2257	519 615	5	3	1557 1845	216 166		6	1296	5183 5 <b>098</b>
INDIVA HICH ONIO	1501 1133 2968	4.	2 2 2	3002 2266 5936	461 265 466	5 5 5	3 3	1303 795 1366	187 121 214		6	1122 726 1284	5587 3787 <b>8686</b>
TLL. WISC HIM	1512 1891 2115	5 5 5	3 3 3	4536 5673 6345	458 475 4 <b>6</b> 3	4 5 5	2 3 3	916 1425 12 <del>09</del>	190 150 200	7 7 7	5 5 5	958 798 1 <b>88</b> 8	6402 7888 0554
Iona Brags	1564	<u> 5</u>	3 2	4752 3886	287 4627	\$	3	574 12 <b>00</b> 1	118	7	5	596 18356	5916 26323
DAKW DAKW	4216 2601 3652	3 3 5	1 1 3	4216 2681 9156	516 361 552	6	4	2664 1264 1656	21 <i>0</i> 177 254	# # 7	•	1266 1962 1276	7534 4947 12002
HEADE SHERIDE	9164 2375	2 4	2	4750	1231 396 276	5	3	4924 1180 1686	611 163	7	5	3666 815	6753 1872
DIX DIX EUSTIS	4154 121	2 2 3	1	121	586 543	6	4	2320 2172	132 214 159	•	•	792 1284 954	3664 3247
Les Toad Lead	2956 2565 76	) 2 2	1	2056	292 294 14 <b>6</b> 3	5 6	3	976 1176 5612	115 200 004	i	•	690 1728 4824	3622 2964 16436
SUBTOT	72030				10051				7926				
		-			Fines			MAD					
PLORIDA GRORGIA S. CARG	666	•	3	1332 1332	2202 4606 1974	3	1	2282 0 1974	224 259 163		•	1344 1554 970	4835 2886 3866
NISS Time	1965 446	•	3 3 2	2004 3195 892	3602 6535 2013	2 3 3	1	6535 2013	250 363 111	8 7 8	5	1548 1515 666	3552 11245 3571
JACREON	422 426	i	2	044 052	2189 2165	3	1	2109 2105	100 114	į	6.	649 684	3681 3641
CAMPBLE STEMAST STEMS INC	2033	•	2 2 3	390 5666 5286	458 2736 323	3 3 2	1	658 2736	1843 1144 582		•	6250 6064 3812	7386 15266 8298
MCCFBFR MCCFBFR	995 2717	•	2 2 3	1996 5434 864	3571 841 721	3 2	1	3571 641	217 075 96		•	1302 5256 580	6863 11525 1452
MICHER ANAD	709 204	š 5	3	2127 612	706 39	2		į	325 055	·	į	1950 5136	4077 5742
SUBTOT	14223				34963			-	6599				
W188001	392	,	3	906	2272	3	1	DAYS 2272		-	_		
ARKAMS LOUISM TRXAS	353	5	3	1059	1787 2916	2	1	2916	129 114 159	7 7 7	5 5 5	545 576 795	3823 1629 5587
FAMSAS	1162 596	6	•	2684 4648 1788	3845 1268 2532	3	1 2	1260 5064	268 368 168	7 6.	\$	1300 1472 640	3964 7386 7492
140/0A1 1000 100£	1 272 163 2357	•		1 <b>608</b> 652 9420	592 372 2688	5 2 2	3	1777	75 2391 775	6 7 7	4	300 11955	3165 12 <b>66</b> 7
RILEY SAM HOU BLISS	3696 263	6 7	4	14784	2078 1552	4 2	2	4156	1184	<b>6</b> 7	5 4 5	3875 4736 568	13363 23676 1875
L. WOOD	999	7 5 6	5 3 4	15005 2322 3996	224 3948 347	3	2 1 1	448 3948 347	679 243 303	5 7 6	3 5 4	2637 1215 1212	18 <b>096</b> 7485 5355
RRAD	1853 68	7 <b>6</b>	5	9265 24 <b>6</b>	<b>46</b> 7	3	Ī.	46	1387 686	7	5	6535 34 <b>66</b>	15846 3648
SUSTOT	17131				25666				9139				
COL/WYO	453		_		TEAD CINES			DAYS					
CARSON		7 7 7	\$ 5 5	2263 6 14618	1855 931 754		2 2 2	3710 1862 1500	138 128 2345	5 5 5	3	390 366 7035	6365 2222 22553
DAR				1	1185 RRAD	5	3	3555 RRAD 1	read			ead	3555
HWT/IDA	562	•		3372	LIW <b>ES</b> 623	6		2492	-INCC 4944	3	1	DATS 4944	19000
UTAN/WV ARI ZONA HUACHUC	204 167 355	i		1764 1662 2136	313 232 476	6	4	1252 920 1428	1307 1856 3459	2 5	3	5568 13036	2956 7498 17394
TRAD	367 4990	•	6	2202	365 6734	ě	i	1468	71	i	i	•	3662
	****				•/3•				14232 SMAD			SHAD	
CALIF OREGON	905	:	•	4030	1122	?	5	3616	.IN <b>QS</b> 6193	3	1	6193	16633
Haring	319 259		:	1914 1 <b>554</b>	314 312	7	5	1576 1566	2897 2228 1366	4	2	5794 6456	9276 7570
ingin Linis One	937 3611 1618		•	5622 18066 9660	1523 213 246	7 7 7	5 5	7615 1065 1236	14 1886 2641	1	į	14 37 <b>60</b>	13251
PREIDIO SAAD	197 661	i		942 3966	174	į	5	179 2030	2292 2069	2 2		i	10090 1012 5996
SUBTOT TOTAL	7759				4310				21520	1014			5 <b>8590</b> 2
	116933				<b>8966</b> 4				39410	TOTA	AGE D		266 <b>00</b> 7 2.1992

1000	upa 1	MLT. 100	POUR										
DOSTIN TION	FIMES MCYO	UPS TO SOME	ime Tine	DAYS	RRAD LIMES	UPS T	RAMEIT TIME	DAYS	enad Lines	OPS TR	MSIT Time	SMAD DAYS	TOTAL DAYS
HAINE MM/VER HASE COUM/R HASE COUM/R HASE COUM/R HASI FEMAL HASI HO/DC VA/M.V. HASI HAGE DENM HEADE BELVOII LEAD SUBTO?	R 5391 4416 3854 1711 A 2330 D 2257 1943 4216 2661 9164	4433322233433222	2211166611166611666	2574 1316 1316 5391 2335 2237 3866 4218 2681 6 121	128 182 392 341 1232 578 599 291 519 615 4827 516 381 1231 278 583 292 294 1463	7666665555666665666	5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	648 728 1488 1364 4928 2312 2396 1164 12964 12964 12964 1988 2328 2128 2128 2176 5612	75 98 180 144 456 199 230 95 216 166 177 611 132 214 159 115 288 664			458 588 1686 664 2736 1194 1396 578 1296 1836 1262 1262 1462 1462 1462 1462 1462 146	2974 1898 3804 4163 13955 1596 1598 26323 7534 4947 6598 1872 26423 7534 4947 6598 1872 2642 26423 7534 4947 6598 1872 2644 14436
OWIO	1581	2		_	443		_						
HICH HICH HIGH HIGH HIGH HICH HICH HICH	1133 2968 1912 1891 2119 1584 3652 2375 2189	3 3 3 4 5 4 5 2 2 2	10123331000	1133 6 1512 3702 6345 3160 9156 2375	461 265 469 438 475 463 287 552 396 422 195 2717 7001	5 5 4 5 5 5 3 3 3	33323332111	1383 795 1386 916 1425 1289 574 1656 1188 422 195 2717	187 121 214 196 198 200 118 254 163 100 1643 075	6 8 7 7 7 7 7 7 7	6 6 6 5 5 5 5 5 6 6	1122 726- 1284 956 796- 1000 590 1276- 013 6438 6238 5230	2585 2654 2664 3378 5997 8554 4332 12882 4378 6453 7967
	FIRES		_		LINES		_						
PLORIDA GEORGIA 8. CARG ALABAMA HISS TEMM JACKBOM STEMART BEMM ING GONDON MCCLERA ROCKER AMAD	424 424 468 1669 446 426 2033 1762 995	5 4 4 5 5 5 5 5 5	3 2 2 3 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3	1209 1332 648 2064 3193 892 892 3666 5266 5296 464 2127 612	2202 4606 1974 3602 6539 2013 2105 2736 323 3571 721 700 39	3272323222		2282 6 1974 6 6535 2613 2165 2736 8 3571	224 239 163 258 363 111 114 1144 562 217 90 325 655	\$ 8 8 8 7 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	1344 1354 978 1548 1515 666 684 3812 1382 508 1958 5138	4835 2006 3800 3552 11245 3571 3641 15266 0298 6863 1452 4077 5742
SUBTOT	10009				31215				4573				
					rrad Liwes								
MISSOUR AREAMS LOUISMA TEXAS ORLA HEB-DAR MOOD POLE RILEY SAM HOU BLISS L. MOOD SILL CCAD RRAD	353 469 651 1162 596 272 163 2357 3696	556665666775676	3 3 4 4 4 4 5 5 5	906 1059 1076 2684 4640 1700 1000 652 9428 14704 1315 15005 2322 3996 9265 246	2272 1707 2916 3645 1260 2532 372 2678 1552 224 3948 347 46 7	32323452242333322	1 6 1 2 2 1 1 1 6	2272 2916 3946 1260 3946 1777.8 8 4156 8 448 3948 347 46	129 114 159 268 368 160 75 2391 775 1184 112 879 243 383 1367 686	777766776757677	5555444554535455	645 576 795 1380 1472 648 386 11955 3875 4736 2637 1215 1215 1215 1216 5535 3466	3823 1629 5587 3984 7386 7492 3165.6 12667 13163 23676 18796 7485 5555 15846 3646
SUBTOT	17131				25666				9139				
					TEAD INES								
COL/NTO NEW MEX CARSON DAK	453 2862	7 7 7	5 5 5		1855 931 754 1185	4 4 5	2 2 2 3		136 126 2345	5 5 5	) )	398 366 7635 6	6365 2222 22553 3555
HWT/IDA	562	•	6	3372	.IW <b>ES</b> 623	6	4	2492	.IW <b>ES</b> 4944	3	1	4944	10000
OTAN/WV ARISONA HOACHUC TEAO	204 167 355 367	•	6	1764 1862 2136 2262	313 232 476 365	6 5 6	1	1252 926 1428 1466	1367 1856 3459 71	2 5 6 2	3	5568 13836	2956 7498 17394 1662
SUBTOT	4996				6734				14232 SMAD				
CALIF	005	•		4836	1122	7			1 <b>026</b>	•		<b>614</b> -	14645
OREGON WASHUTU SEVADA	319 259	i	i	1914 1954	314 312	į	5 5 5	1570 1566	2897 2228	4	2 2	6193 5794 4456	16633 9278 7570
PRINT	937 3611	•		5622 18 <b>066</b>	1523 213	7	5	7615 1 <b>66</b> 5	1306 14 1886	2 3	1 2	14 3760	13251 22091
PREIDIO SAAD	1616 197 661			9668 942 3966	246 174	7	5	1236	2641 2292	2 2	•		1012
SUBTOT	7759	•	•	1746	4 <b>96</b> 431 <b>0</b>	7	5	2636	2069 21520	2 1074	e L Dat		5996 59035
TOTAL	117267			1	9310				59410	TOTA		_	66007
										AUTO	-		1014

HODE	UPS A	LT. NO P	IVE A	MD SIX	OST								
DESTIM NOIT			ameit Time	MCAD DAYS	erad Lines	UPS TE	ameit Time	RRAD DAYS	enad Lines	UPS TRA	ing The	SHAD	TOTAL
MAIME MM/VER HASS COMM/R MASS COMM/R MMM VO PRIM SJOCK VA/M.V.V. SRAGG COVERS CHOOSE SEACO COVERS CO	1316 1316 1317 18 3391 4416 3054 1711 18 2336 0 2257 1941 4210 2661 9164 121 2696 4154 121 2696 76	4 4 1 1 3 3 2 2 2 2 3 3 4 9 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	22111000112110001100	1884 2574 1316 2135 3391 8 8 2338 2257 1886 4218 2681 8 121 2856	128 182 352 341 1232 578 599 291 519 615 4827 516 1231 221 231 292 294 1463	766666655566666566	5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	648 728 1468 1364 4920 23312 2396 1164 1257 1445 12681 1264 4924 1900 2326 2172 876 5612	75 90 184 456 199 256 95 216 166 1726 218 177 611 132 214 159 115 280 884			451 581 1864 273 1194 1584 576 1294 994 1862 3664 792 1284 954 696 1728 4824	2974 3896 3896 3884 4363 4365 3386 3896 3896 5183 5183 5898 26323 7534 4947 8596 1872 3664
	rimes Feov												
ONIO HICH HICH HIGH WISC HIMM HCCOY. SHERION ENT CAMPROL KNOX	1512 1891 2113 1504 3052 2375 2189 658 841	2 3 4 5 4 5 2 2 2	1 2 3 1 6 6	1133 1512 3762 6345 3168 9136 2375	461 265 466 458 475 403 287 552 396 422 195 2717	555455455333	3 3 3 3 3 3 3 1 1 1 1	1383 795 1386 916 1425 1289 574 1656 1188 422 195 2717	187 121 214 198 158 286 118 254 163 100 1643 875	88877777888	5 5 5 5 5 6 6 6	1122 726 1284 958 798 1689 1278 815 648 6258 5258	2565 2654 2664 3378 5957 4332 12602 4370 1476 6453 7967
SUBTOT	21819 UCAD				7091 AMAD				3631				
PLORIDA		5	3	: 1209	LIMBS 2202	3	1	2282	224			1344	
GEORGIA \$. CARO ALABAMA MISS TENNI JACKSOM STEMAR? BEMM ING GORDON MCCLELIN RUCKER AMAD	424 668 1665 446 426 2033	4 4 5 5 4 4 5 5 5 5	2233222323333	1332 848 2004 3195 092 052 5666 5206 1990 064 2127 612	4606 1974 3662 6535 2613 2105 2736 323 3571 721 766 39	3 3 3 3 3 3 2 2 2 2 2		1974 6535 2013 2105 2736 3571	259 163 258 303 111 114 1144 502 217 98 325	**************************************	6 6 6 6 6 6 6	1344 1554 978 1548 1515 666 684 6864 3812 1362 588 1956 5136	4835 2886 3890 3552 11245 3571 3641 15266 8298 6863 1452 4877 5742
SUBTOT	15889				31215 RRAD LIWES				4573				
MISSOUR ARKAMS LOUISWA TEXAS ORLA HOOD POLR SAM HOU BLISS L. WOOD SILL CCAD RRAD	302 353 469 651 1162 163 2357 263 3161 774 999 1853 60	556666775676	3 4 4 4 5 5 3 4	986 1839 1876 2684 4648 652 9428 1315 15885 2322 3996 9265 248	2272 1787 2916 3845 1268 372 2688 1552 224 3948 347 46	2 2 2 2 2 4 3 3 3 2 2	1 6 1 6 2 1 1	2272 8 2916 8 1260 8 6 448 3948 3948 347 46	129 114 159 268 368 2391 775 112 879 243 363 1387 688	7 7 7 8 7 7 7 5 7 6 7	5555455535455	645 576 795 1360 1472 11955 3875 560 2637 1215 1212 6535 3400	3823 1629 5587 3964 7386 12667 13363 1875 18896 7485 5555 15846 3648
SUBTOT	12567				29464				7720				
				£	Puda Ines								
COL/WYO NEW MEX CARSON NEB/DAK KAWSAS RILEY	453 2802 272 596 3696	7 7 6 5 6	4	2265 6 14818 1888 1788 14784	1055 931 754 1777 2532 2678	2 3 2 4 4	1 0 2 2 2	931 9 3555 5664 4156	136 126 2345 73 166 1184	5 5 6 6	3 3 4 4 4	396 366 7635 306 646 4736	2655 1291 21645 4943 7492 23676
MWT/IDA	562	•	•		INES 623	•	4	2492	INES 4944	1	1	4944	16668
UTAM/NV ARISONA HUACHUC TRAD SUBTOT	284 167 355 367 9554		6 6	1764 1862 2130 2262	313 232 476 365		3	1252 928 1428 1466	1307 1856 3459 71 15651	2 5 6 2	3	5568 13836	2956 7498 17394 3662
									SHAD INES				
CALIP OREGON MASHATA MENADA INVIN LEWIS ORD PREIDIO	965 319 259 937 3611 1616 157		•	4434 1914 1554 6 5622 18066 9660 942	312 1523 213 246 174	7 7 7 7 7	5 5 5 5 5	\$610 1570 1560 0 7615 1065 1230 870	6193- 2097 2228 1306 14 1000 2641 2292	2 2	1220012	6193 5794 4456 8 14 3768	16633 9278 7576 6 13251 22891 16896 1812
SUBTOT	661 . 7759	•	6	3966	496 431 <b>8</b>	7	5	2036	2 <b>069</b> 21520	2 TOTAI	. DA	YS	5996 551189
TOTAL	117207			1	9310		··		39410	TOTAL AVER		NES	266007 2.0718

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#### APPENDIX G

This appendix contains calculations for First Destination Transportation Cost under four scenarios:

- Scenario #1 A producer in Columbus, Ohio, ships three truckloads totalling 50,000 lbs: 25,000 lbs -->NCAD, 15,000 lbs -->RRAD and 10,000 lbs -->SHAD.
- Scenario #2 A producer in New York City, New York, ships three truckloads totalling 80,000 lbs: 40,000 lbs -->NCAD, 25,000 lbs -->RRAD, 15,000 lbs -->SHAD.
- Scenario #3 A producer in Los Angeles, California, ships three lessthan truckloads totalling 10,000 lbs: 5,000 lbs -->NCAD, 3,000 lbs -->RRAD, and 2,000 lbs --> SHAD.
- Scenario #4 A producer in Detroit, Michigan, ships three less-than truckload shipments totalling 2,050 lbs: 1,000 lbs -->NCAD, 800 lbs -->RRAD, and 250 lbs -->SHAD.

Equations used to estimate costs are:

Truckload: Cost = 120.57 + .009597(WT) + .7427(MILES) for WT  $\geq 10,000$  lbs

Less Truckload: Cost =  $.433(WT) \cdot 541$  (MILES)  $\cdot 328$  for WT < 10,000 lbs

Scenario #1 - Most likely midwest producer.

	Producer -	Columbus, Oh	io, ships tru	ckload shipment	ts % Change
ALT 1	NCAD: RRAD: SHAD:	25,000 lbs 15,000 lbs 10,000 lbs		> \$ 638 > \$ 915 > \$2006	.86
				\$3560	.54 0%
ALT 2	NCAD: RRAD: SHAD: ANAD:	24,800 lbs 11,205 lbs 10,000 lbs 3,995 lbs	@ 2410 mi	> \$ 636 > \$ 879 > \$2006 > \$ 312	.44 .42
				\$3834	.61 +7.70%
ALT 3	NCAD: RRAD: SHAD: ANAD: TEAD:	24,800 lbs 9,720 lbs 9,440 lbs 3,995 lbs 2,045 lbs	@ 877 mi @ 2410 mi @ 594 mi	> \$ 636 > \$ 865 > \$2001 > \$ 312 > \$ 309	.19 .04 .40
-	t			\$4124	.23 +15.83%
ALT 4	NCAD: RRAD: SHAD: ANAD: TEAD: LBDA:	23,850 lbs 9,720 lbs 9,440 lbs 2,870 lbs 2,045 lbs 2,075 lbs	@ 374 mi @ 877 mi @ 2410 mi @ 594 mi @ 1738 mi @ 194 mi	> \$ 627 > \$ 865 > \$2001 > \$ 261 > \$ 309 > \$ 151	.19 .04 .22 .25
				\$4215	.77 +18.40%
ALT 5	NCAD: RRAD: SHAD: ANAD: TEAD: LBDA: PUDA:	23,850 lbs 9,720 lbs 9,440 lbs 2,870 lbs 560 lbs 2,075 lbs 1,485 lbs	@ 374 mi @ 877 mi @ 2410 mi @ 594 mi @ 1738 mi @ 194 mi @ 1366 mi	> \$ 627 > \$ 865 > \$2001 > \$ 261 > \$ 153 > \$ 151	.19 .04 .22 .46 .84
				\$4300	+20.78%

ALT 6	NCAD:	22,250 lbs	6	374 mi	>	\$ 611.87
ALT 6	RRAD:	9,720 lbs	0	877 mi	>	\$ 865.19
	SHAD:	9,440 lbs	-	2410 mi	>	\$2001.04
	ANAD:	2,870 1bs	6	594 mi	>	\$ 261.22
	TEAD:	560 1bs	6	1738 mi	>	\$ 153.46
	LBDA:	2,075 1bs	6	194 mi	>	\$ 151.84
	PUDA:	1,485 lbs	6	1366 mi	>	\$ 240.34
	LEAD:	1,600 lbs	0	347 mi	>	\$ 159.64

\$4444.60 +24.83%

#### Scenario 2 - East coast producer.

### Producer - New York City shipping as

ALT 1	NCAD: RRAD: SHAD:	40,000 lbs 25,000 lbs 15,000 lbs	0 168 mi 0 1376 mi 0 2891 mi	> >	\$ 629.23 \$1382.44 \$2411.63	
					\$4423.31	
ALT 2	NCAD: RRAD: SHAD: ANAD:	39,680 lbs 18,675 lbs 15,000 lbs 6,645 lbs	0 168 mi 0 1376 mi 0 2891 mi 0 938 mi	> > >	\$ 626.16 \$1321.73 \$2411.63 \$ 477.90	
					\$4837.42	+9.36%
ALT 3	NCAD: RRAD: SHAD: ANAD: TEAD:	39,680 lbs 16,200 lbs 14,160 lbs 6,645 lbs 3,315 lbs	0 168 mi 0 1376 mi 0 2891 mi 0 930 mi 0 2225 mi	> > >	\$ 626.16 \$1297.98 \$2403.57 \$ 477.90 \$ 435.51	
- -			•		\$5241.12	+18.49%
ALT 4	NC AD: RRAD: SHAD: ANAD: TE AD: LBDA:	38,160 lbs 16,200 lbs 14,160 lbs 4,770 lbs 3,315 lbs 3,395 lbs	0 168 mi 0 1376 mi 0 2891 mi 0 938 mi 0 2225 mi 0 709 mi	> > > >	\$ 611.57 \$1297.98 \$2403.57 \$ 399.44 \$ 435.51 \$ 303.17	
					\$5450.83	+23.23%
ALT 5	NCAD: RRAD: SHAD: ANAD: TEAD: LBDA: PUDA:	38,160 lbs 16,200 lbs 14,160 lbs 4,770 lbs 840 lbs 3,395 lbs 2,475 lbs	0 168 mi 0 1376 mi 0 2891 mi 0 938 mi 0 2225 mi 0 709 mi 0 1828 mi	> > > >	\$ 611.57 \$1297.98 \$2403.57 \$ 399.44 \$ 207.23 \$ 303.17 \$ 348.61	
	•				\$5571.16	+25.95%

ALT 6	NCAD:	35,600 lbs	@ 168 mi	>	\$ 587.00
	RRAD:	16,200 lbs	@ 1376 mi	>	\$1297.98
	SHAD:	14,160 lbs	@ 2891 mi	>	\$2403.57
•	ANAD:	4,770 lbs	0 938 mi	>	\$ 399.45
	TEAD:	840 1bs	@ 2225 mi	>	\$ 207.23
	LBDA:	3,395 1bs	0 709 mi	>	\$ 303.17
	PUDA:	2,475 lbs	0 1828 mi	>	\$ 348.61
	LEAD:	2,560 lbs	0 215 mi	>	\$ 175.94

\$5722.54 +29.37%

## Scenario #3 - West coast producer.

	Produc	er in Los A	Angeles – ligh	tweight	items to	
ALT 1	NCAD: RRAD: SHAD:	3.000 lbs	@ 2627 mi @ 1547 mi @ 330 mi	> >	\$ 574.40 \$ 366.24 \$ 177.18	
					\$1117.82	
ALT 2	NCAD: RRAD: SHAD: ANAD:	2,241 lbs	@ 2627 mi @ 1547 mi @ 330 mi @ 2085 mi	> > >	\$ 571.91 \$ 312.24 \$ 177.18 \$ 197.44	
					\$1258.77	+12.6%
ALT 3	NCAD: RRAD: SHAD: ANAD: TEAD:	1,944 lbs		> > >	\$ 571.91 \$ 289.62 \$ 171.74 \$ 177.18 \$ 95.85	
-			.*		\$1306.30	+16.86%
ALT 4	NCAD: RRAD: SHAD: ANAD: TEAD: LBDA:	1,944 lbs 1,888 lbs		> > >	\$ 171.74 \$ 165.09 \$ 95.85	
					\$1422.37	+27.72%
ALT 5	NCAD: RRAD: SHAD: ANAD: TEAD: LBDA: PUDA:	4,770 lbs 1,944 lbs 1,888 lbs 574 lbs 112 lbs 415 lbs 297 lbs	@ 1547 mi @ 330 mi @ 2085 mi @ 695 mi @ 2159 mi	> > > >	\$ 559.95 \$ 289.62 \$ 171.74 \$ 165.09 \$ 47.56 \$ 140.12 \$ 91.45	
			٠		\$1465.53	+31.11%

ALT 6	NCAD:	4,450 lbs	@ 2627 mi	>	\$ 539.30
	RRAD:	1,944 lbs	@ 1547 mi	>	\$ 289.62
	SHAD:	1,888 lbs	0 330 mi	>	\$ 171.74
	ANAD:	574 1bs	@ 2085 mi	>	\$ 165.09
	TEAD:	112 lbs	0 695 mi	>	\$ 47.56
	I RDA:	415 1bs	8 2159 mi	>	\$ 140.12

297 1bs 320 1bs

PUDA: LEAD:

\$1574.27 +40.83%

Scenario #4 - Midwest producer of small lightweight parts in limited quantity.

	Producer:	Dearborn, M	ichigan, ship	ping less	than truckload	i shipments.
ALT 1	NCAD: RRAD: SHAD:	1,000 lbs 800 lbs 250 lbs	@ 479 mi @ 1025 mi @ 2374 mi	> >	\$ 137.61 \$ 156.52 \$ 109.88	
				•	\$ 404.01	(
ALT 2	NCAD: RRAD: SHAD: ANAD:	992 1bs 598 1bs 250 1bs 210 1bs		> >	\$ 137.01 \$ 133.72 \$ 109.88 \$ 68.46	<b>i</b>
				•	\$ 449.07	+11.1%
ALT 3	NCAD: RRAD: SHAD: ANAD: TEAD:	518 lbs 236 lbs 210 lbs	@ 1025 mi @ 2374 mi @ 748 mi	> > >	\$ 137.01 \$ 123.73 \$ 106.51 \$ 68.46 \$ 49.96	
-			• •	•	\$ 485.67	+20.2%
ALT 4	NCAD: RRAD: SHAD: ANAD: TEAD: LBDA:	518 lbs 236 lbs 150 lbs 94 lbs	0 1025 mi 0 2374 mi 0 748 mi 0 1708 mi	> > > >	\$ 134.14 \$ 123.73 \$ 106.51 \$ 57.07 \$ 49.96 \$ 35.47	
					\$ 506.88	+25.4%
ALT 5	NCAD: RRAD: SHAD: ANAD: TEAD: LBDA: PUDA:	518 lbs 236 lbs 150 lbs 15 lbs 98 lbs	@ 1025 mi @ 2374 mi @ 748 mi @ 1708 mi @ 354 mi	> > > >	\$ 134.14 \$ 123.73 \$ 106.51 \$ 57.07 \$ 21.53 \$ 35.47 \$ 49.08	<b>,</b>
					\$ 527.53	+30.6%

NCAD:	890 lbs	@ 479 mi	>	\$ 129.20
RRAD:	518 1bs	@ 1025 mi	>	\$ 123.73
SHAD:	236 1bs	0 2374 mi	>	\$ 106.51
ANAD:	150 1bs	0 748 mi	>	\$ 57.07
TEAD:	15 1bs	@ 1708 mi	>	\$ 21.53
LBDA:	98 1 bs	@ 354 mi	>	\$ 35.47
	79 1bs	0 1360 mi	>	\$ 49.08
LEAD:	64 1bs	@ 452 mi	>	\$ 30.52
	SHAD: ANAD: TEAD: LBDA: PUDA:	RRAD: 518 lbs SHAD: 236 lbs ANAD: 150 lbs TEAD: 15 lbs LBDA: 98 lbs PUDA: 79 lbs	RRAD: 518 lbs @ 1025 mi SHAD: 236 lbs @ 2374 mi ANAD: 150 lbs @ 748 mi TEAD: 15 lbs @ 1708 mi LBDA: 98 lbs @ 354 mi PUDA: 79 lbs @ 1360 mi	RRAD: 518 lbs @ 1025 mi> SHAD: 236 lbs @ 2374 mi> ANAD: 150 lbs @ 748 mi> TEAD: 15 lbs @ 1708 mi> LBDA: 98 lbs @ 354 mi> PUDA: 79 lbs @ 1360 mi>

\$ 553.11 +36.97

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### APPENDIX H

## ACRONYMS AND ABBREVIATIONS

Abs Absolute Adj Adjusted

ADP Automated Data Processing AIF Army Industrial Fund

AL Alabama

ALMSA Automated Logistics Management Systems Activity

ALT Alternative

AMC Army Materiel Command

AMCCOM Armament, Munitions, and Chemical Command

AMDF Army Master Data File

Ammo Ammunition

AMS Army Management Structure

ANAD Anniston Army Depot AOD Area Oriented Depot AR Army Regulation

Arkans Arkansas

ASF Army Stock Fund
AV Motor, Van, Closed

Avg Average

AVCOM Aviation Systems Command (officially AVSCOM)

AVSCOM Aviation Systems Command

BPI - Blocks Per Inch

CA California
Calif California
Campbll Fort Campbell

CCAD Corpus Christi Army Depot
CCP Container Consolidation Point
CCSS Commodity Command Standard System

CCSSOI Commodity Command Standard System Operating Instructions

CECOM Communications-Electronics Command

CLIN Contract Line Item Number

CO Colorado
COL Colorado
CONN Connecticut

CONUS Continental United States

CT Connecticut
Cum Cumulative
CY Calendar Year

Dak Dakota

DARCOM US Army Materiel Development and Readiness Command (now AMC)

DESCOM Depot Systems Command

Dest Destination
Diff Difference

DLA Defense Logistics Agency

DLAM Defense Logistics Agency Manual

DOD Department of Defense

DODAAC Department of Defense Activity Address Code

DODMDS Department of Defense Materiel Distribution Study

DRD Demand Return and Disposal File

DSS Direct Support System

Eq Equation Est Estimate(d)

FDT First Destination Transportation

FINS Freight Information System

FL Florida

FOB Free on Board

FORSCOM US Army Forces Command

FSC Federal Supply Classification

Ft Fort

FWDA Fort Wingate Depot Activity

FY Fiscal Year

GA Georgia

GBL Government Bill of Lading

GBLOC Government Bill of Lading Office Code

Gov Government

HO Headquarters

HOMIS Headquarters Management Information System

Hr Hour

HUACHUC Fort Hauchuca

K Thousands
KENT Kentucky
KS Kansas
KY Kentucky

Lou is iana Pound Lb

Lexington-Bluegrass Depot Activity LBDA

LCA Logistics Control Activity . Letterkenny Army Depot LEAD .

Logistics Intelligence File LIF

Logarithm Loa LOUISNA Louis iana

Logistics Systems Analysis Office LSA0

Logistics Studies Office LS0

Logistic Systems Support Activity **LSSA** 

Less Than LT

Fort Leonard Wood L.Wood

Million

Massachusetts MA MASS Massachusetts Fort McClellan **MCCLELN** 

Maryland Meth Methodology MEX Mexico Michigan MI Mile mí MICH Michigan MICOM

Missile Command

Military Supply Transportation Evaluation Procedure MILSTEP

Minnesota MINN Miscellaneous Misc Mississippi MISS MISSOUR Missouri MN Minnesota Montana MNT Modernization Mod

Material Release Order MRO

Mississippi MS

Major Subordinate Command MSC

MT Montana Method(ology) Mthd

Military Traffic Management Command MTMC

North Carolina NC

New Cumberland Army Depot NCAD

North Carolina NCARO Nebraska NEB New York New Yor New Hampshire NH

National Inventory Control Point NICP

NJ · New Jersey NO Number

NSN National Stock Number

**NSNMDR** National Stock Number Master Data Record

New York OASD(MRA&L) Office of Assistant Secretary of Defense - Manpower Reserve Affairs and Logistics

**OCONUS** Outside Continental United States

HO Ohio **OKLA** 0k1ahoma

OMA Operations Maintenance Army

**Operations** 0ps Operns | **Operations** Orig Origin

Other Supplies 05

Office of Secretary of Defense OSD

OST Order Ship Time

PA Procurement Army

Pa ram Parameter PΕ Program Element PENN Penns yl vania

PIIN Procurement Instrument Identification Number

POC Point of Contact PRSIDIO Presidio of California **PUDA** Pueblo Army Depot Activity

Qtr Quarter Qty Quantity

RI Rhode Island **RRAD** 

Red River Army Depot

SAAD Sacramento Army Depot SAG Study Advisory Group SAM HOU Fort Sam Houston SC South Carolina S. CARO South Carolina

SDT Second Destination Transportation

SEAD Seneca Army Depot SHAD Sharpe Army Depot SHERIDN Fort Sheridan SIAD Sierra Army Depot

SLAM Simulation Language for Alternative Modelling

ST Short Tons Std Standard S-Tons Short Tons

SVDA Savannah Depot Activity TACOM Tank-Automotive Command

TEAD Tooele Army Depot

TENN . Tennessee
T/Loads Truckloads
tm . Trademark

TOAD Tobyhanna Army Depot

Total Total

TRADOC US Army Training and Doctrine Command

TROSCOM Troop Support Command

TSARCOM Troop Support and Aviation Readiness Command

TX Texas

UMDA Umatilla Depot Activity

UMMIPS Uniform Materiel Movement and Issue Priority System

Unk Unknown

UPS United Parcel Service

USPS United States Parcel Service

VA Virginia VER Vermont Vol Volume

WA Washington WASHNTN washington

WIDS Wholesale Interservice Depot Support

WISC Wisconsin
Wt Weight
Wtd Weighted
W.VA West Virginia

WYO Wyoming

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DIR, AMSAA, ATTN: AMXSY-PA (2 cy)
DIR, Defense Technical Information Center (2 cy)
COMDT, US MARINE CORPS, ATTN: LMM-Z (1 cy), LFT (1 cy)
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COMDT, ALMC, ATTN: DLSIE (1 cy)
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TITLE

Wholesele Stock Positioning and Distribution Policies - Phase I

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THE PRINCIPAL FINDINGS and recommendations of the work reported herein are as follows:

- 1. Increasing the number of stock positioning locations within the Army Materiel command distribution network will:
- a. Significantly increase supply depot operating costs, first destination transportation cost and result in a significant initial non-recurring cost.
- b. Slightly reduce second destination transportation cost and transportation time. Since the total supply cost increases as a result of increased stock positioning, the continuation of the existing three-depot structure is recommended.
- 2. Distribution non-effectiveness, measured as percent of "out-of-area" shipments is high, resulting in a higher than optimal cost of \$1.5M per year in second destination transportation charges and an average transit time increase of one-half day per line shipped. Further study is recommended to investigate strategies to improve distribution effectiveness.

THE MAIN ASSUMPTIONS on which the work reported herein rests are as follows:

- 1. OCONUS distribution continues to flow through the existing container consolidation points.
- 2. Modes of transportation are primarily driven by volume of customer demand. Transportation modes are independent of the number and location of stock positioning points.
- 3. Distribution effectiveness is independent of the number and location of stock positioning points.

THE PRINCIPAL LIMITATIONS of this work which may affect the findings are as follows:

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- 2. Study is based on Army stock, positioned in Army depots serving Army demand. Extension of study results to distribution networks outside the Army is limited.

THE SCOPE OF THE STUDY was limited to the storage of Class IX supplies at up to eight Army depots.

THE BASIC APPROACH. The CONUS distribution network is varied from the current configuration of three Area Oriented Depots to a maximum of eight stock positioning points. Through the use of parametric cost models developed from CY 84 data and questionnaire responses from functional experts, the impact on nonrecurring start up costs, first and second destination transportation cost, supply depot operating cost and recurring costs above depot are evaluated for each alternative distribution network. The effect on response time to requisitions is evaluated by the use of models developed by previous researchers, supplemented by a heuristic model developed for a special case.

THE REASONS FOR PERFORMING THE STUDY. The issue of optimal stock positioning within the Army and DUD is a recurring area of disagreement between individuals and organizations. Since the Army has not studied its wholesale stock positioning policy since the early 1970s and because subsequent studies by others have been critical of the Army's policy, a re-evaluation of the wholesale physical distribution system is needed. This new evaluation should address all important concerns raised by recent studies and their rebuttals.

STUDY IMPACT STATEMENT. This phase of the study validates the Army general distribution concept while pointing out some inefficiencies that may be reduced upon further study.

THE STUDY SPONSOR was the US Army Materiel Command, Directorate for Supply, Maintenance and Transportation.

THE STUDY EFFORT was directed by Mr. Francis Toner, Directorate for Supply, Maintenance and Transportation, Supply Division, Depot Operations Branch.

ADDRESS FOR COMMENTS AND QUESTIONS. Director, AMSAA, ATTN: AMXSY-LLSO, Mr. Paul E. Grover.



as follows:

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BRIEFING

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THE BASIC APPROACH. The CONUS distribution network is varied from the current configuration of three Area Oriented Depots to a maximum of eight stock positioning points. Through the use of parametric cost models developed from CY 84 data and questionnaire responses from functional experts, the impact on nonrecurring start up costs, first and second destination transportation cost, supply depot operating cost and recurring costs above depot are evaluated for each alternative distribution network. The effect on response time to requisitions is evaluated by the use of models developed by previous researchers, supplemented by a heuristic model developed for a special case.

THE REASONS FOR PERFORMING THE STUDY. The issue of optimal stock positioning within the Army and DOD is a recurring area of disagreement between individuals and organizations. Since the Army has not studied its wholesale stock positioning policy since the early 1970s and because subsequent studies by others have been critical of the Army's policy, a re-evaluation of the wholesale physical distribution system is needed. This new evaluation should address all important concerns raised by recent studies and their rebuttals.

STUDY IMPACT STATEMENT. This phase of the study validates the Army general distribution concept while pointing out some inefficiencies that may be reduced upon further study.

THE STUDY SPONSOR was the US Army Materiel Command, Directorate for Supply, Maintenance and Transportation.

THE STUDY EFFORT was directed by Mr. Francis Toner, Directorate for Supply, Maintenance and Transportation, Supply Division, Depot Operations Branch.

ADDRESS FOR COMMENTS AND QUESTIONS. Director, AMSAA, ATTN: AMXSY-LLSO, Mr. Paul E. Grover.

DTIC/DLSIE ACCESSION NUMBER OF FINAL REPORT. DA 306121.



## TITLE Wholesele Stock Positioning and

Distribution Policies - Phase I

BRIEFING



## THE PRINCIPAL FINDINGS and recommendations of the work reported herein are as follows:

- 1. Increasing the number of stock positioning locations within the Army Materiel command distribution network will:
- a. Significantly increase supply depot operating costs, first destination transportation cost and result in a significant initial nonrecurring cost.
- b. Slightly reduce second destination transportation cost and transportation time.
- Since the total supply cost increases as a result of increased stock positioning, the continuation of the existing three-depot structure is recommended.
- 3. Distribution non-effectiveness, measured as percent of "out-ofarea" shipments is high, resulting in a higher than optimal cost of \$1.5M per year in second destination transportation charges and an average transit time increase of one-half day per line shipped. Further study is recommended to investigate strategies to improve distribution effectiveness.

## THE MAIN ASSUMPTIONS on which the work reported herein rests are as follows:

- 1. OCONUS distribution continues to flow through the existing container consolidation points.
- 2. Modes of transportation are primarily driven by volume of customer demand. Transportation modes are independent of the number and location of stock positioning points.
- Distribution effectiveness is independent of the number and location of stock positioning points.

THE PRINCIPAL LIMITATIONS of this work which may affect the findings are as follows:

- 1. Study is based on data collected during the CY 1984 time frame.
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TITLE

Wholesele Stock Positioning and Distribution Policies - Phase I

BRIEFING \_\_\_\_

REPORT\_X



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- 3. Distribution non-effectiveness, measured as percent of "out-of-area" shipments is high, resulting in a higher than optimal cost of \$1.5M per year in second destination transportation charges and an average transit time increase of one-half day per line shipped. Further study is recommended to investigate strategies to improve distribution effectiveness.

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TITLE

Wholesele Stock Positioning and Distribution Policies - Phase I

BRIEFING \_\_\_\_ R

REPORT X

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